The Republic of Kenya

Ministry of Public Health and Sanitation

DIVISION OF LEPROSY TUBERCULOSIS AND LUNG DISEASE

ANNUAL REPORT

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Compiled by
Dr. Herman Weyenga and Hillary Kipruto

DIVISION OF LEPROSY TUBERCULOSIS AND LUNG DISEASE

P.O Box 20781-00202 Nairobi, Kenya
Telephone: +254-020-27198
Email: info@nltp.co.ke
Website: http//:www.nltp.co.ke

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Other partners who have started to work closely with the division are also commended since it is only through such partnerships that TB patients are enabled to access quality care and support.

Staff working within the division: central unit, CRL, provinces, districts and health facilities are highly commended for making TB control in Kenya a success. It is expected that they will continue to work with renewed energies to ensure that TB and poverty become history and that Kenya becomes, one day a society free from tuberculosis one day.

LIST OF ABBREVIATIONS

ALERT	All African Leprosy and Rehabilitation Training Center
CDR	Case Detection Rate
CHEW	Community Health Extension Worker
CHW	Community Health Worker
CIDA	Canadian International Development Agency
CNR	Case Notification Rate (Number of Cases Notified/100,000 Pop.)
DLTLD	Division of Leprosy, TB and Lung Disease
DMS	Director of Medical Services
DST	Drug Susceptibility Testing
DTLC	District TB / Leprosy Coordinator
E	Ethambutol
EPTB	Extra-Pulmonary Tuberculosis
GOK	Government of Kenya
GON	Government of the Netherlands
H	Isoniazid
HIV	Human Immuno-Deficiency Virus
IUATLD	International Union Against TB & Lung Diseases
KANCO	Kenya AIDS NGOs Consortium KENYA AIDS NGOS CONSORTIUM
KNCV	Royal Netherlands Tuberculosis Control Association
MB	Multi-Bacillary (Leprosy)
MDT	Multi Drug Therapy (Leprosy)
MOH	Ministry of Health
NGO	Non-Governmental Organization
NTLC	National TB/Leprosy Coordinator
OOC	Out Of Control
PB	Pauci-Bacillary (Leprosy)
PTB	Pulmonary Tuberculosis
PTLC	Provincial Tuberculosis / Leprosy Coordinator
R	Rifampicin
RFT	Released From Treatment (Leprosy)
S	Streptomycin
SCC	Short Course Chemotherapy

SM-	Smear-Negative Pulmonary Tuberculosis
SM+	Smear-Positive Pulmonary Tuberculosis
ST	Sensitivity Testing
TB	Tuberculosis
TC	Treatment Completed
TNC	Treatment Not Completed
TO	Transferred Out (of an administrative area)
VMT	Voluntary Muscle Testing
WHO	World Health Organization
Z	Pyrazinamide

SUMMARY

The DLTLD, continued to carry out relevant activities aimed at controlling the tuberculosis (TB) epidemic, lung disease and the elimination of leprosy in 2009. In relation to TB control the focus of attention in 2009 remained hinged on the six elements of the STOP TB strategy formulated by WHO with emphasis on DOTS expansion, improvement in DOTS quality and expansion of TB/HIV collaborative activities, addressing the challenge of MDR TB, Empowering communities with the knowledge about TB and enabling and promoting research. Leprosy control continued to focus on early case finding, intensified supervision in the leprosy endemic districts, multi-drug therapy and prevention of disabilities.

The total number of TB cases (all forms of tuberculosis) reported in 2009 was 110,065. This is a decrease of 0.2% compared to the 110,251 cases of TB cases reported in 2008. This is a clear indication that TB cases notified in Kenya is stabilizing and hopefully beginning to turn round. Although the stagnation in case notification, was first noticed in 2004, this phenomenon that may be the result of a slackening of TB case finding efforts or may be due to a stabilization of the epidemic as a result of previous TB control efforts. With the increased communication and social mobilization efforts sustained and technical support to implementing units being provided case notification in 2010 may further reduce.

Tuberculosis treatment results for TB patients started on treatment in 2008 show treatment success rates of 85.43% for new smear-positive pulmonary TB cases (n=36,811), 80% for smear-positive re-treatment relapse cases (n=2,617), 79% for smear-positive re-treatment failures cases (n=155), 84% for new smear-negative PTB cases (n= 35,232), and 83% for Extra-Pulmonary TB cases (n=16,881). Coupled with an increased case detection rate (TB all forms) to 80%, this is a great milestone since it puts Kenya among the few countries in Africa to have achieved the WHO targets.

There were a total of 204 new leprosy cases in 2009, of which 9 (4%) cases were pauci-bacillary (PB) and 195 (96%) multi-bacillary (MB) cases. This is an increase of 2% compared to the 200 cases registered the previous year. The number of leprosy patients on the register at the end of the year increased from 188 cases in 2008 to 234 cases in 2009. The proportion of disabilities among the newly registered cases still remain high calling for increased support to sensitization of health care workers to increase their index of suspicion for leprosy. About 20% had disability grade 2, and an additional 23% had disability grade 1, indicating that 43% of cases presented themselves in an already advanced stage of the disease, either caused by patients or health provider delay. However, in 9% of new cases the disability grade was not recorded. Compared to 2008, the overall case holding improved for both (PB) and (MB) cases. The proportion of cases released from treatment (RFT) increased from 60% in 2006 to 70% in 2007 for PB cases and for MB cases it increased from 70%in 2008 to 73% in 2009.

The DLTLD continued to pursue implementation of the quality DOTS strategy through expansion and harnessing gains made in previous years. These initiatives include engaging all providers (PPM), implementation of activities aimed at mitigating the impact of HIV on TB and TB on HIV. Community engagement and involvement (CB-DOTS), intensification of efforts to control TB in large urban centres, strengthening the laboratory network for TB control, communication and social mobilization and the control of TB in congregate

settings. DLTLD TB control activities in summary hinges on the six elements of STOP TB strategy.

To enable the DLTLD to implement these initiatives the DLTLD continued to receive financial and technical support from several organizations including the Government of Kenya through the Ministry of Public Health and Sanitation; the Government of the United States of America (USG) through the President's Emergency Plan for AIDS Relief (PEPFAR) whose main implementing agencies in Kenya include the Centers for Disease Control and Prevention (CDC) and the United States Agency for International Development (USAID) through TBCAP and subcontracting APHIA II partners, Canadian International Development Agency (CIDA), Royal Netherlands Tuberculosis Association (KNCV), Malteser; a German NGO; the Global Fund to fight AIDS, TB and Malaria (GFATM), African Medical and Research Foundation (AMREF), MERLIN, and World Health Organization (WHO).

Activities carried out by the DLTLD in 2009 are summarized in this report. It is hoped that those who read this report will provide the DLTLD with constructive comments that will assist in the development of new or improved approaches to TB and Leprosy control activities in Kenya and assist the country towards implementing activities.

1 INTRODUCTION

1.1 History and organization of DLTLD

The Government of Kenya launched the National Leprosy and Tuberculosis Program (DLTLD) in 1980 combining the then existing tuberculosis control activities, which had been in place since 1956, with several leprosy control projects in Western Kenya, Coast and Eastern Province, which had been initiated since the early seventies, into one program: the National Leprosy/Tuberculosis Program (NLTP).

As at 1st July 2007 the National Leprosy and Tuberculosis program (NLTP) was elevated to Division of Leprosy, Tuberculosis and Lung disease (DLTLD), within the Ministry of Public Health and Sanitation in the Department of Disease Prevention and Control. This has given more impetus to the program with new demands and challenges that will include amongst others, critical issues on lung health.

In 2009 TB and Leprosy services were delivered through 2,318 health units managed Mainly by the Ministry of Public Health and Sanitation, Ministry of Medical services Health (and other Ministries), NGO/FBO health units and some private institutions. Smear microscopy services were available at 1,030 of these health units (see table 1A and B).

Table 1A: Provision of TB treatment services in 2009

	GOK	**NGO**	**PR**	**Total**
Hosp.	199	105	82	386
Health C.	544	118	60	722
Disp.	915	139	37	1091
Other	8	20	53	81
Total	**1704**	**382**	**232**	**2,318**

Table 1B: Provision of AFB diagnostic services in 2009

	GOK	**NGO**	**PR**	**Total**
Lab	679	199	119	997
AFB	753	172	105	1,030
Total				

Provision of leprosy and tuberculosis services is integrated into the general health service at the district level. However special staff of the DLTLD is responsible for coordination, supervision and technical advice in relation to management of TB and Leprosy at all levels. In 2009, a total of 148 District Tuberculosis/Leprosy Coordinators (DTLCs) were responsible for coordinating the delivery of TB and Leprosy services. These officers were supported by 12 Provincial Tuberculosis/Leprosy Coordinators (PTLCs). Eighteen technical officers were available at the central unit of the DLTLD to provide technical guidance for the national response to TB and Leprosy control. These technical staff at the central unit were supported by administrative, secretarial and support staff including 7 drivers.

The organogram of the DLTLD is shown in *Annex 2*.

1.2 Technical policies

For a long time the DLTLD relied on passive case finding to identify infectious and other forms to reduce the transmission of both leprosy and tuberculosis. In 2009 there were efforts to intensify TB case finding through the use of household/community cough monitors, screening for TB in persons found to be HIV infected at HIV testing sites, intensification of TB screening for contacts of patients with PTB through contact invitation and screening of new inmates in prisons. Emphasis was geared towards intensified case finding among the smear positive tuberculosis. The GOK continued to provide free TB treatment at all government owned facilities, most Faith Based (FBO) and NGO health facilities, and some private institutions. All the institutions receiving free quality assured anti-TB drugs from the DLTLD (and some private hospitals supplied with anti-TB drugs by the Kenya Association for the Prevention of Tuberculosis and Lung Diseases (KAPTLD)) used the DLTLD TB case recording and reporting tools to report cases on a quarterly basis to the central level through the DTLCs and PTLCs.

Monitoring and Evaluation system was enhanced during the year with training of 75 DTLC's and care providers on monitoring and evaluation. During the trainings, the monitoring and evaluation tools were reviewed and printed to ensure that they are in line with the current TB and Leprosy control efforts.

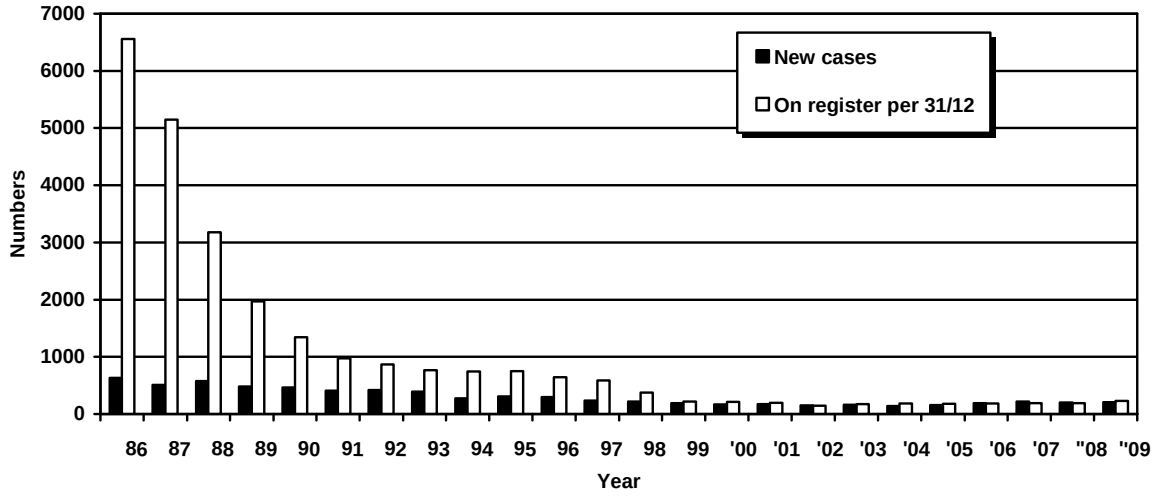
DLTLD with the support of CDC in 2008, rolled out the use of Electronic TB registers with the aid of PDA's and Desktop computers; this was further expanded in 2009 to cover one more region. Preliminary results indicate that this initiative is assisting in significantly improving the timeliness and quality of the reported data.

2 LEPROSY

2.1 The extent and trend of leprosy in Kenya

Like in most countries, the true prevalence and incidence of leprosy in Kenya is not known. So far, the most reliable indicators to monitor the extent and the trend of the leprosy disease burden is the registered prevalence of cases currently on treatment, and the notification of new cases. Since the introduction of Multi-Drug Therapy (MDT) in 1985, the registered prevalence decreased from 6,558 cases in 1986 to 204 cases by the end of 2009. The number of new leprosy cases detected decreased from 630 in 1986 to 157 in 2009 as shown in *Fig.1 below*

Figure 1: Leprosy New Cases & cases on register by the end of the year: 1986-2009



2.2 Case-finding

2.2.1 Case notification

The number of leprosy cases (new and re treatment) reported increased by 2% from 200 in 2008 to 204 in 2009. Leprosy is no longer a public health problem in Kenya. The WHO defines leprosy as a public health problem if there is a registered prevalence of more than one (1) leprosy case per 10,000 population. It is noted that the great majority of new leprosy cases are found in just a few districts in Kenya. However, even in these districts, leprosy is not a public health problem as it has been eliminated, although it is yet to be eradicated. The number of cases on register increased from 188 at the end of 2008 to 234 by the end of 2009. The rise in the number of Leprosy cases on register is however attributed to the intensified supervision to the leprosy endemic districts. Of great concern is that most patients (43%) are diagnosed with disabilities i.e. grade 1 and 2. These could be a result of patient or health system delay. Concerted efforts must be made to train health care workers on how to effectively suspect and diagnose leprosy cases.

2.2.2 Leprosy: Epidemiological indicators.

Table 2 gives a summary of epidemiological indicators for new leprosy cases put on treatment from 1994 up to 2009.

Table 2: Epidemiological indicators new leprosy cases Kenya: 1996-2008

Indicators/year	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09
New PB cases	43	41	25	37	18	13	9	6	12	18	17	14	9
New MB cases	194	174	166	133	157	141	153	137	146	172	196	153	148
Total new cases	237	215	191	170	175	154	162	143	158	190	213	167	157
Pop. (n x 1,000,000)	27.0	27.7	28.7	29.5	30.4	31.4	32.3	33.3	34.4	35.5	36.6	37.1	39.4
CDR new cases (n/100,000)	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.5	0.5	0.6	0.5	0.4
Registered Prevalence 31/12	589	375	214	209	195	148	176	182	180	185	191	200	234
Reg. prev (n/10,000)	0.2	0.08	0.07	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06
M/F ratio	1.2	1	0.7	1.2	1	1	1.1	1.3	0.9	1.2	1.4	1..13	1
Child < 15 yrs. (%)	8	7	4	5	3	2	5	3	4	4	4	6	7
MB proportion (%)	83	81	87	78	90	91	94	96	92	91	92	92	90
Reported disability (%)	97	100	100	95	88	93	87	88	69	78	81	100	91
Disability grade 0(%)	59	67	55	60	45	36	34	50	61	64	56	54	48
Disability grade 1(%)	23	15	20	24	27	42	39	34	25	26	26	23	23
Disability grade 2(%)	16	19	25	16	28	22	27	17	15	10	17	13	20
MDT coverage(%)	100	100	100	100	100	100	100	100	100	100	100	100	100

Child proportion < 15 years: This indicator provides information on the transmission of leprosy in the community (a high transmission level will cause a high proportion of children among newly reported cases of leprosy). In 2009 this proportion was 7%, which indicates a low level of transmission as would be expected but this represents a 1 percent increase from the previous year.

Male/female ratio: This indicator provides gender differences on the distribution of leprosy. In most countries, the male/female ratio among leprosy patients is unequal with, in general, more males than female cases. However, in Kenya this ratio, on average, has for many years been around 1.

Proportion of new MB cases: This indicator provides information about the success of a leprosy control program. If infectious cases are detected and treated effectively, the number of new cases will gradually decrease and the proportion of infectious cases (MB leprosy) amongst them will increase. In Kenya the proportion of MB cases has increased from about 25%, before 1990, to 90% in 2009, indicating that leprosy control, so far, is effective.

Proportion of Disability grade 2: This indicator gives information about the delay between noticing the first symptoms of leprosy (hypo-pigmented patches) by the patient and the start of treatment with anti-leprosy drugs (MDT). The longer the delay, the bigger the chance that the patient will have developed nerve impairment and subsequent anatomic and or functional damage by the time treatment is initiated. This delay may be caused by patient factors including lack of awareness of the disease by the patient or lack of motivation to report to the health service (patients delay), or by health system factors including health provider knowledge and skill to properly diagnose and or treat leprosy (health provider delay). In 2009 the proportion of grade 2 disabilities among newly registered leprosy cases was 20% a 7 percentage increase from 13% in 2008, which is increasing from the recommended level of below 10%. This increase may be explained by health care provider sensitization carried out previously. The proportion of patients presenting with either grade 1 (23%) or 2 (20%) disability was 43% indicating that still a considerable proportion of patients are diagnosed at an already advanced stage of leprosy. This implies that there is a significant delay in the diagnosis and treatment of leprosy. There was no disability grading for 10% of new cases. This is a reason for concern since it implies that a significant proportion of leprosy patients may not be receiving appropriate evaluation and care. The declining prevalence of leprosy coupled with insufficient training and awareness for the disease and its management amongst health workers most likely is contributing to this observation. Thus efforts must be applied to ensure that proper recording and management of cases is instituted immediately.

2.3 Case-holding

Case holding includes all activities directed at reaching the highest possible proportion of patients successfully completing their treatment. This can be observed in the proportion of cases “released from treatment (RFT)”. The proportion “out of control (OOC)” is of importance because it is an indicator of the activities of the health services to timely detect possible defaulters, find and motivate them to complete their treatment. The following tables show the results of treatment of PB and MB cases from 1987. Although the WHO - MDT regimen was introduced in 1985, it was not until 1991 that it was fully implemented.

Tables 3 and 4 show the outcome of treatment for the new PB and MB cases from 1987 to 2008

Table 3: Treatment Results of PB cohorts 1987-2008

PB	RFT		TNC		Died		TO		OOC		Total
Cohort	n	%	n	%	n	%	n	%	n	%	n
'87	147	55	59	22	1	0.4	10	4	52	19	269
'88	514	66	71	9	4	1	62	8	126	16	777
'89	452	79	73	13	3	1	5	1	40	7	573
'90	260	74	43	12	4	1	5	1	39	11	351
'91	158	70	23	10	2	1	4	2	39	17	226
'92	131	78	11	7	0	0	6	4	19	11	167
'93	132	83	2	1	0	0	10	6	15	9	159
'94	53	79	1	1	2	3	3	4	8	12	67
'95	62	94	0	0	1	2	3	5	0	0	66
'96	60	90	1	1	0	0	3	4	3	4	67
'97	32	100	0	0	0	0	0	0	0	0	32
'98	31	91	0	0	0	0	1	3	2	6	34
'99	32	94	0	0	0	0	1	3	1	3	34
'00	26	74	1	3	0	0	4	11	4	11	35
'01	20	77	1	4	2	8	2	8	1	4	26
'02	23	70	8	24	0	0	2	6	0	0	33
'03	31	74	0	0	0	0	7	17	4	10	42
'04	28	80	2	6	2	6	2	6	1	3	35
'05	27	69	7	18	2	5	2	5	1	3	39
'06	33	67	6	12	2	4	3	6	5	10	49
'07	39	60	17	26	2	3	3	5	4	6	65
'08	31	70	3	7	0	0	2	5	8	18	44

The proportion of PB cases RFT for the 2008 cohort was 70% while 18% of patients went out of control. These results indicate that the DLTLD has yet to achieve the recommended treatment results for PB cases of RFT of 90% or higher. With the small numbers of patients, these results are unacceptable and probably suggest the eclipsing of leprosy control activities by the bigger TB problem. However the treatment results of MB cases with a RFT proportion of 73% and a defaulter rate of 9% are unacceptable and are below the recommended range of RFT of 75-80% or higher. The shortening of the treatment duration from two to one year should have contributed to better treatment outcomes.

Table 4: Treatment Results MB cohorts 1987-2007

MB	RFT		TNC		Died		TO		OOC		Tot
Cohort	n	%	n	%	n	%	n	%	n	%	n
'87	87	67	5	4	1	1	4	3	32	25	129
'88	77	72	67	6	18	2	7	1	217	20	108
'89	13	69	10	5	5	3	11	6	33	17	190
'90	94	59	9	6	9	6	7	4	41	26	160
'91	10	62	6	4	3	2	10	6	44	26	167
'92	17	60	18	6	7	2	33	12	53	19	281
'93	18	67	6	2	4	1	25	9	56	20	277
'94	15	62	17	7	15	6	22	9	41	16	251
'95	12	66	6	3	7	4	25	14	24	13	183
'97	16	85	2	1	1	1	15	8	11	6	195
'98	16	84	0	0	3	2	12	6	15	8	192
'99	11	80	3	2	1	1	9	6	15	10	143
'00	11	80	4	3	2	1	11	8	12	8	146
'01	12	80	10	6	2	1	8	5	10	11	156
'02	13	83	7	4	4	3	7	4	9	6	157
'03	17	78	20	9	1	<,1	14	6	13	6	220
'04	15	80	12	6	3	2	12	6	10	5	150
'05	14	80	14	8	0	0	12	7	10	6	177
'06	99	70	23	16	0	0	5	4	14	10	141
'07	15	73	13	6	0	0	27	12	19	9	217

2.4 Prevention of disabilities

So far, no reliable data is available concerning prevention of disabilities. The DLTLD leprosy guidelines recommend routine VMT/ST examinations on quarterly basis for each newly registered leprosy patient on treatment and for all patients who present with symptoms suggesting a reaction. Technical support missions (supervision) have suggested that either VMT/ST examinations are routinely not done or the results of these examinations are not filled in the patient cards. No records/registers are kept on the incidence of reactions or the prevalence of disabilities (no leprosy ward admission register for leprosy patients or a care/disability register). It is recommended that reactions should be treated with prednisolone. It is questionable whether reactions are recognized in time and if so whether appropriate action is taken. Patient record cards, on which this information is supposed to be entered, are often incompletely filled; the technical support to leprosy endemic areas should be intensified to ensure that guidelines are adhered to.

There are about 6 orthopedic workshops in the country, which produce footwear and prostheses for leprosy patients. However, the DLTLD did not follow up reports on their outputs, again probably the result of the eclipsing of leprosy by TB.

It is clear, that more emphasis should be placed on leprosy control and in particular, on prevention of disabilities.

Constraints to improved performance

The declining number of cases detected annually has made leprosy a low priority disease. This has resulted in little resources being allocated to leprosy control activities. This translates to very little training and support of peripheral health staff on leprosy control activities. Virtually all the funds available to the DLTLD are earmarked for TB and especially TB/HIV related activities. It is gratifying to note that some funding from WHO became available in 2009 for sensitization of District health management teams, Training of health care workers and intensified supervision in Leprosy endemic districts. If leprosy control activities continue to receive little attention, there is a real danger that leprosy may rebound to become a public health threat.

- The massive burden of TB continues to eclipse the insignificant leprosy problem. Program staff remains overloaded with the management of high numbers of TB cases and devote less time to the pursuance of leprosy control activities.
- There continues to be a high turnover of trained staff at both peripheral and the district levels.
- Lack of resources set aside for leprosy control

The country however appreciates the technical and financial support in the procurement of Leprosy drugs by World Health Organization.

3 TUBERCULOSIS

3.1 Magnitude of tuberculosis

DLTLD for the second year in a row reported a decline in the number of notified TB cases. This could be due to stagnation and beginning of the decline in the incidence of TB due to concerted efforts in TB control. The number of reported TB cases has increased tenfold from 11,625 in 1990 to 110,065 cases in 2009 *(Figure 2).* The average annual increase over the past 10 years is 7% for all forms of TB. However, in the last 5 years the annual increase of notified TB cases slowed down to an average of 1%. Case Notification Rates (CNR) increased from 53/100,000 population for all forms of TB and 32/100,000 population for sputum smear-positive PTB cases in 1990 to 326/100,000 population and 95/100,000 population respectively in 2009 *(See Figure 7).*

The major reason for the increasing burden of TB in Kenya is the concurrent HIV epidemic. In the 3rd Quarter of 2005 the DLTLD introduced an integrated TB/HIV data collection system that enabled the collection of HIV related information. Data for the year 2009 indicate that the national average HIV prevalence in TB patients was 44%.

In 2009 the DLTLD surveillance system captured the contribution of the private sector in notifying a total of 2,166 TB patients who were all put on treatment (see table 5).

3.2 Case-finding

3.2.1 Case-finding reporting

The central unit receives case finding reports on a quarterly basis from all districts. These reports are submitted by DTLCs, through their respective PTLCs.

Figure 2: TB case notification DLTLD Kenya: 1990 – 2009

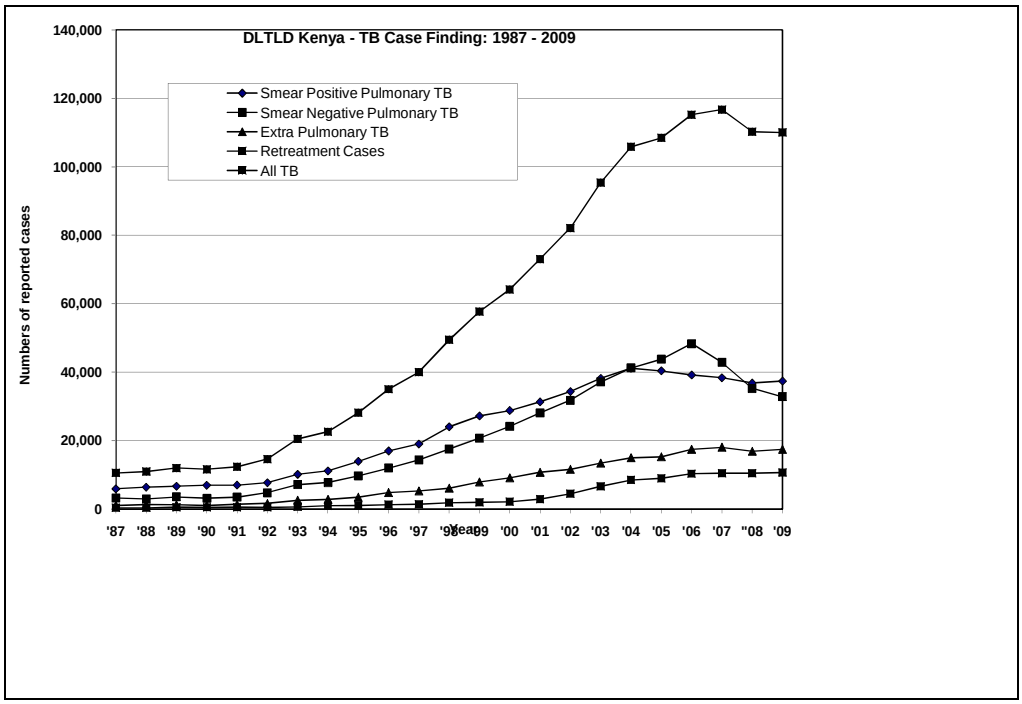


Figure 3: TB case load by province: 2009

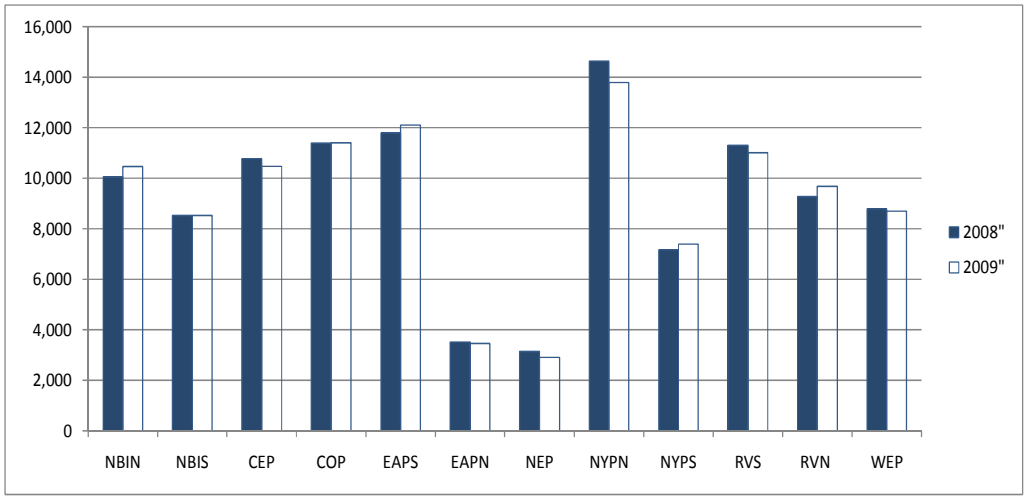


Figure 4: Average 5 year percentage increase in TB cases

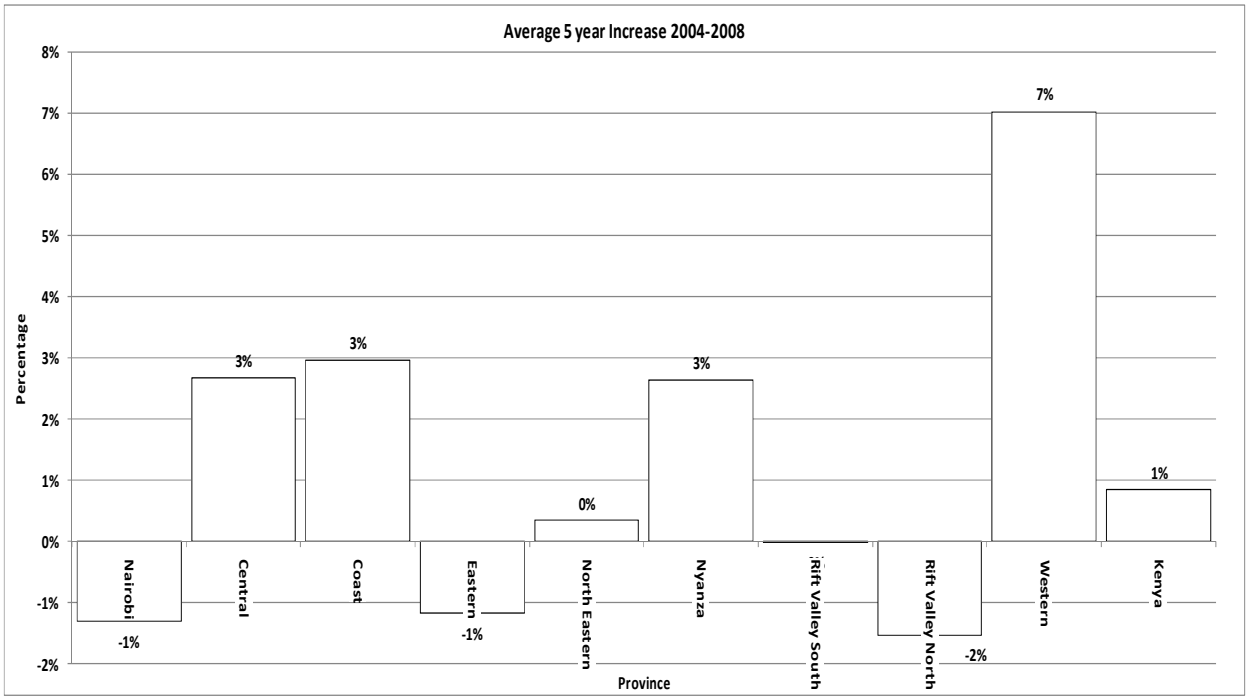


Figure 5: TB annual Increase 1987-2009

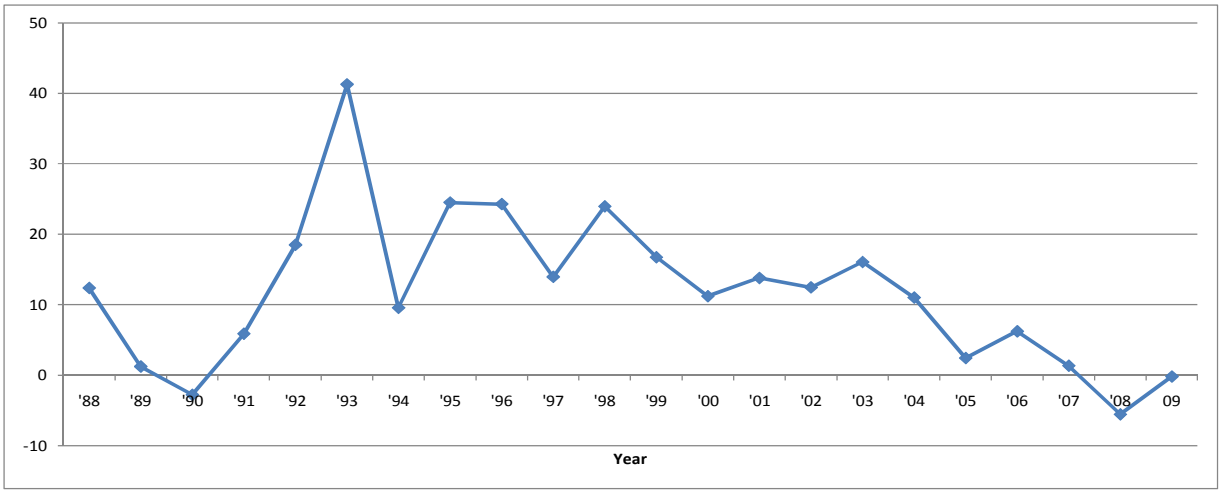
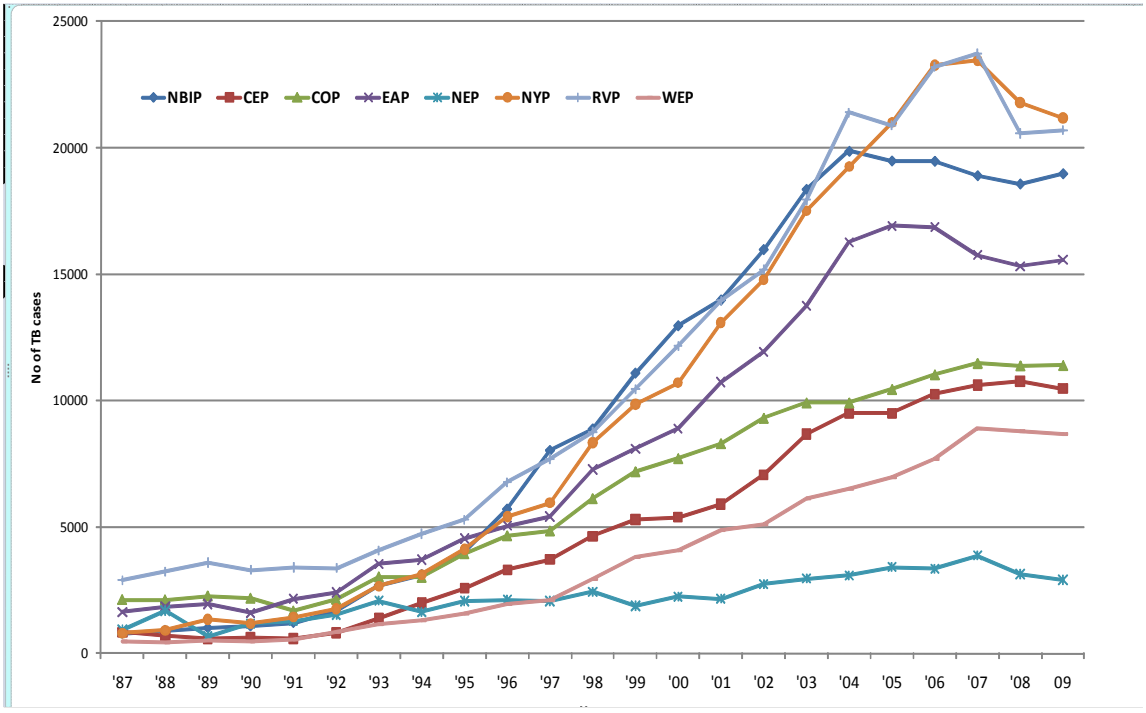


Figure 6: Provincial TB case findings 1987-2009



3.2.2 Case notification rates

Figure 7: Case Notification Rates Smear positive PTB and all Types TB Kenya 1990-2009

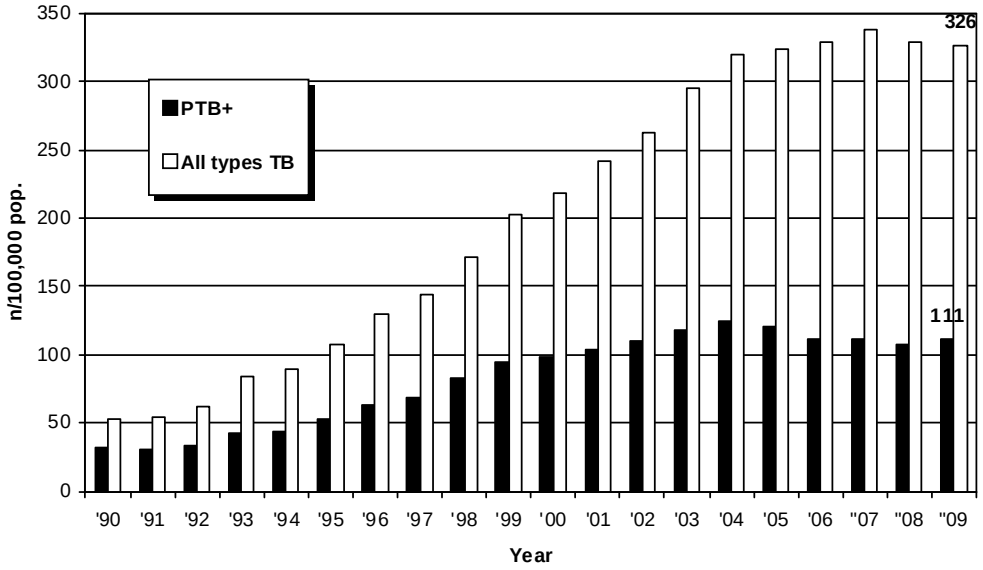
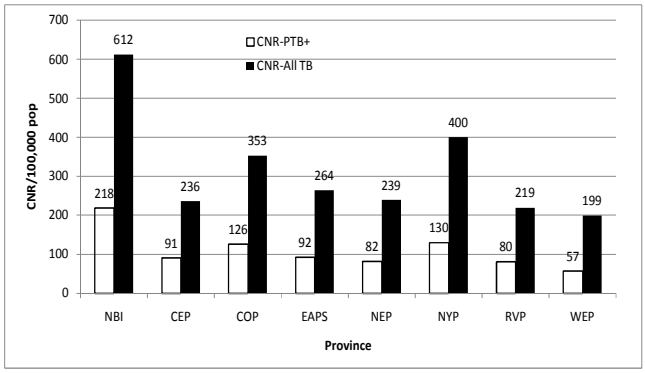


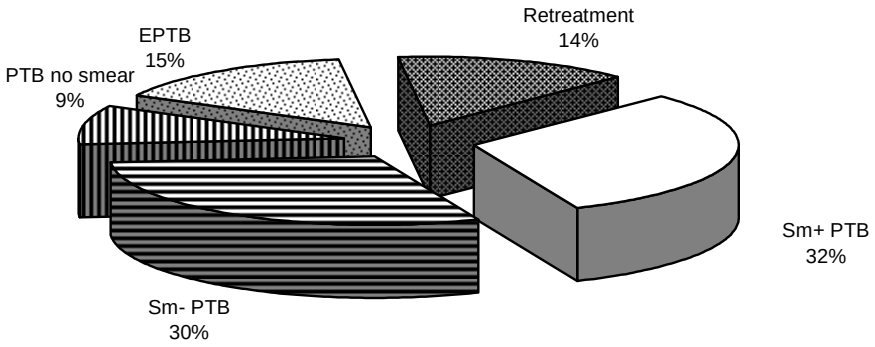
Figure 8: TB Case Notification Rates: All forms of TB and PTB+ per province in 2009



Types of tuberculosis

In 2009, the proportion of sputum smear-positive PTB cases increased by 4% compared to 2008. There was a 17% increase in the proportion of sputum smear-negative PTB cases and adult PTB cases without sputum smear results. *Figure 9* shows the distribution of the different types of TB in 2009. With the high prevalence of HIV in this population it is possible that some of these cases are not true TB cases but represent undiagnosed HIV related disease.

Figure 9: Distribution of TB cases by type, 2009



3.2.3 Gender-age distribution

The age group with the highest TB notification in 2009 remained 25-34 years in both males and females as has been the trend over the last decade. This is the same age category with a high HIV sero-prevalence. Males continue to dominate after the age of 24 over the females who are more below this age group. This trend is clear in *Figures 10, 11 and 12*.

Figure 10: Age Specific CNR New Male/Female PTB+ Cases 2009

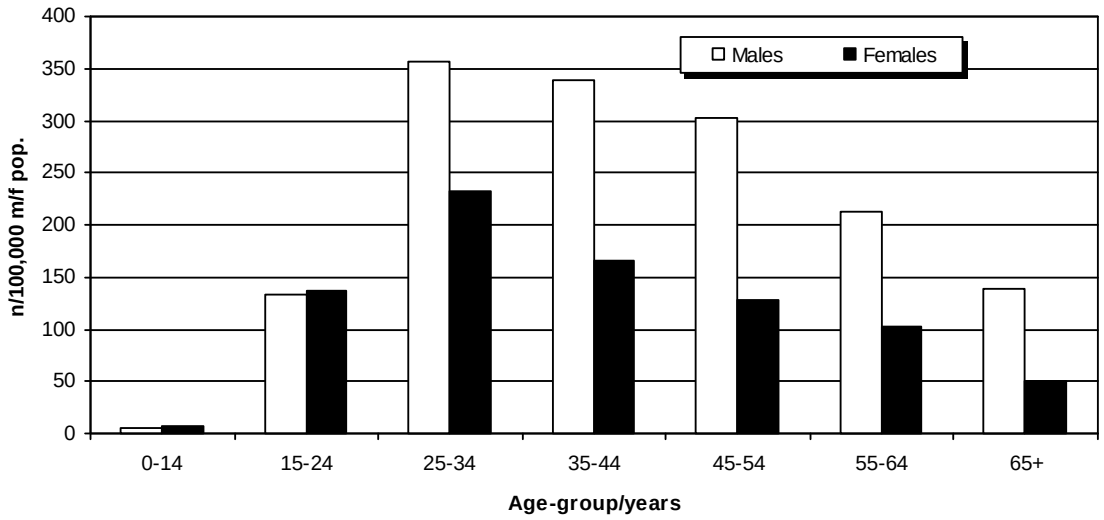


Figure 11: Age-specific CNR new male PTB+ cases: 1993-1998-2009

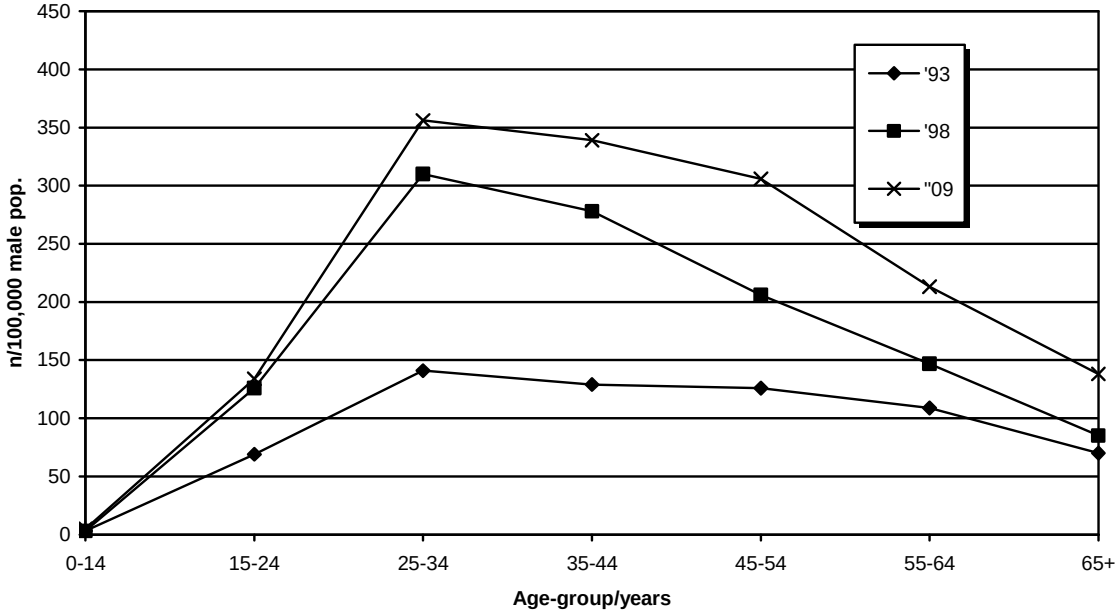
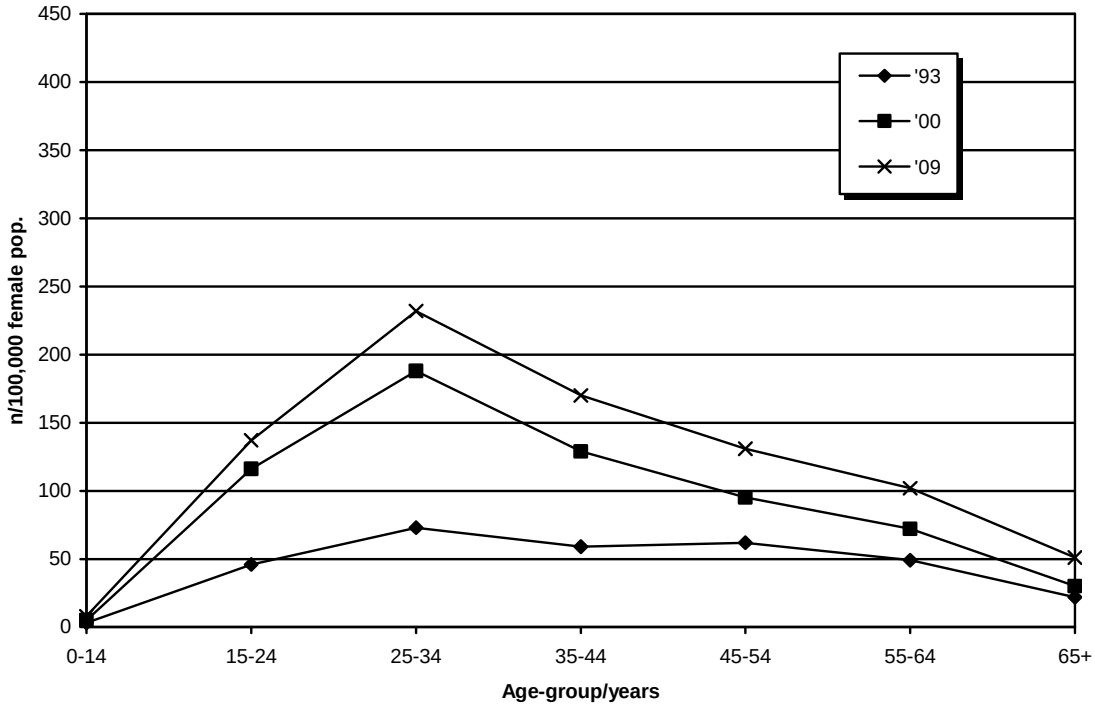


Figure 12: Age-specific CNR new female PTB cases: 1993-2000-2009



3.2.4 Private sector contribution

The private sector both for profit and not for profit provides significant care to TB patients. This sector has flourished since an agreement facilitated by the program between KAPTLD and a drug manufacturing company was signed in 1997. Through this agreement, a drug company provides high quality anti TB drugs to the private sector in Kenya at a highly subsidized price to patients seeking care in this sector. Since the program has overall supervisory activity, the sector is routinely supervised by program staff and all the policy guidelines used belong to the ministry. To further ensure that quality and standards are acceptable, the M and E tools used in this sector are distributed by the program.

Data collected over the years have shown that about 10% of TB patients in the urban set up are managed by the private sector if Nairobi figures can be generalized to cover the whole country. Initiation of new initiatives in this sector has over the years tended to lag behind the public sector as demonstrated in the testing for HIV amongst TB patients (table 5).

Table 5: Case finding in the private sector

Type of TB	NBIN	NBIS	COP	RVS	Kenya
Retreatment	31	19	47	57	154
PTB+	102	109	99	221	531
SMND	43	87	73	127	330
PTB-	70	152	99	331	652
EPTB	107	179	140	73	499
Total	353	546	458	809	2,166
% HIV testing	69	71	80	89	
% HIV+	25	45	41	56	

3.2.5 The impact of HIV infection on case-finding

The HIV epidemic is the major cause of TB epidemic in Kenya. It has significantly led to increased proportion of smear negative pulmonary disease which has surpassed notified cases of smear positive TB disease since 2005. HIV may also have contributed to the increase in cases requiring re-treatment especially those cases classified as other retreatment. Even though smear positive pulmonary disease remains the most important type of TB from a transmission standpoint, in situations where HIV prevalence is high as in Kenya smear negative and extra pulmonary forms of TB assume a great deal of importance because of their contribution to TB morbidity and mortality.

The DLTLD started implementing a countrywide continuous HIV sero-prevalence surveillance system amongst registered TB patients in the last half of 2005 (3rd quarter of 2005). From the 1st quarter 2006 onwards, the new system had been fully implemented in all 80 districts. In this way the DLTLD is able to monitor HIV prevalence amongst TB cases and to track the proportion of TB patients receiving HIV related interventions including HIV testing and counseling, cotrimoxazole preventive therapy and anti-retroviral treatment.

There was a vigorous pursuit of HIV Diagnostic Testing and Counseling (DTC) for all TB patients in 2007, resulting from the publication of the policy document on HIV testing in clinical settings in 2004 and availability of support from partners including PEPFAR and the Global Fund for visible results in TB/HIV collaborative activities, a clear strategic vision by the leadership of the DLTLD to provide comprehensive care to HIV infected TB patients and intensified technical support to the DLTLD provided by technical partners including KNCV and WHO. The results of all these efforts were the development and piloting of a TB/HIV training curricula, printing and distribution of the new recording/reporting (R&R) tools incorporating HIV related data in addition to routine TB data and the procurement and distribution of cotrimoxazole for the prevention of opportunistic infections in HIV positive TB patients.

It is important to note that since 2008 the cohort analysis for patients started on treatment has been stratified by HIV status. Figure 13 below shows the proportion of TB cases tested for HIV and the HIV positivity rate amongst those tested. Figure 14 below demonstrates the HIV prevalence amongst the different types of TB with re treatment failures leading followed by EPTB below 15 years. HIV testing is being promoted as a standard of care for all TB patients. The rate of testing has been increasing over the years since the introduction

of the intervention. Figure 15 indicates that only 8 regions have reached the HIV testing target amongst TB patients of 80% while the rest of the regions are lagging behind.

As expected, with increased coverage of HIV testing, the HIV prevalence amongst TB cases decreases. This probably is caused by a diminishing bias in selecting/offering/availability of HIV testing by the health workers at the different levels of the health care system.

Figure 13: Trend of HIV testing and HIV positivity rate

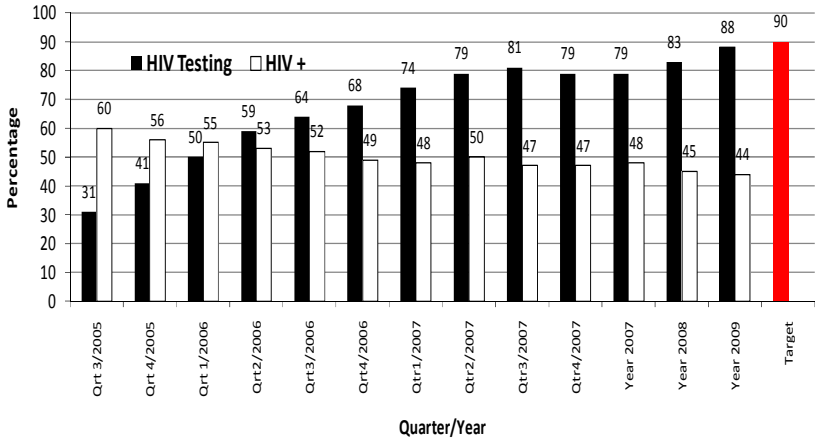


Figure 14: HIV prevalence for different types of TB: 2009

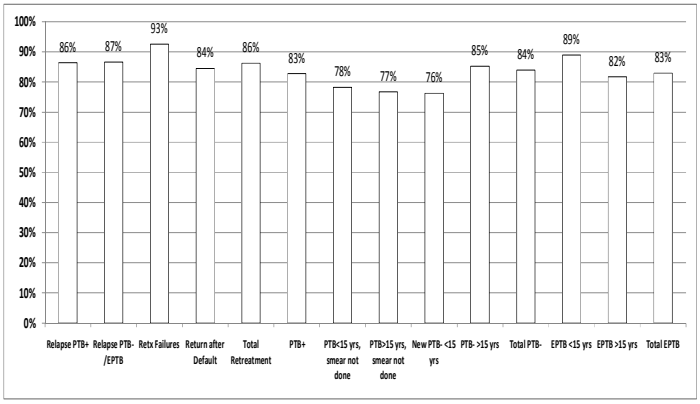
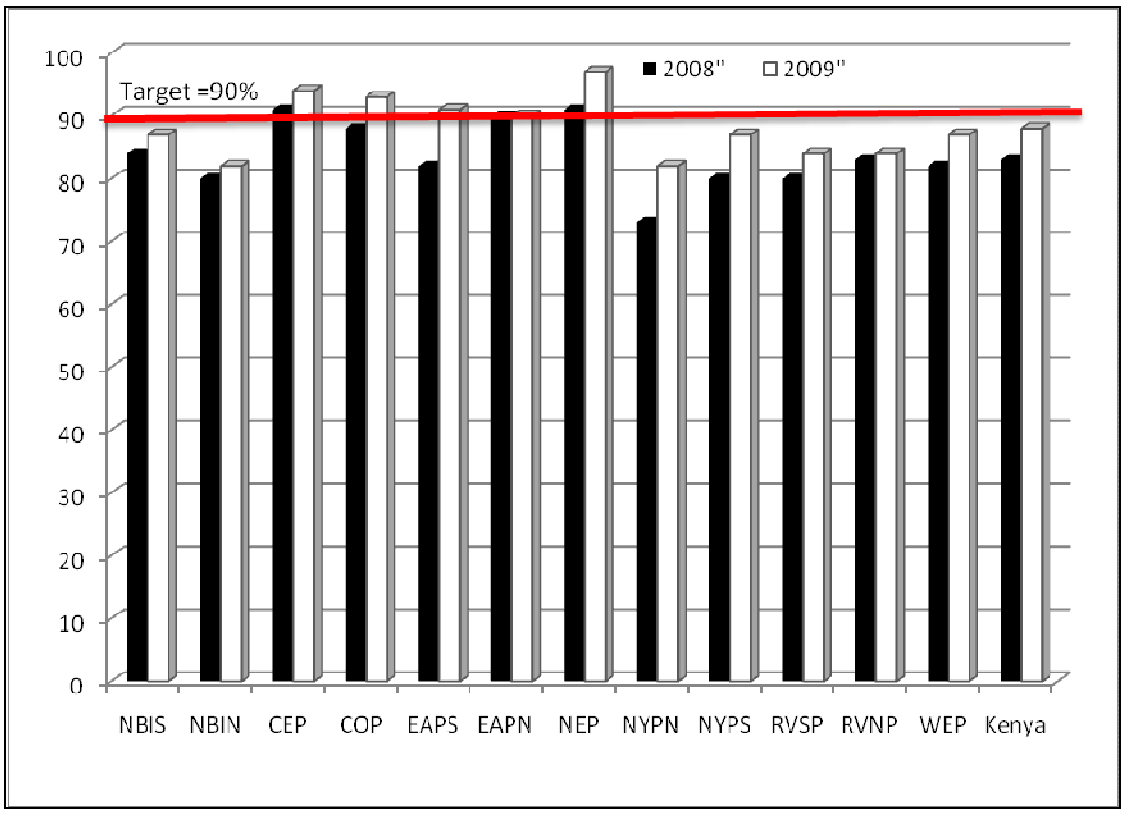


Figure 15: comparison of HIV testing amongst different Provinces: 2009



3.2.6 Case-finding in refugee camps

The refugee camps in Kenya, under the UNHCR, participate in TB control activities under the guidance of the DLTLD. There are four camps: Hagadera, Ifo and Dagahaley (Dadaab) in Garissa District and Kakuma, located in the North of Turkana District. In 2009 a total of 426 cases were reported by the Dadaab camps. All cases were tested for HIV and only 15 (4%) tested HIV positive. These cases were included in the national figures. However it is important to note that most of the immigrants have integrated into the communities in North Eastern province and Nairobi and are served by the general health care system.

3.3 Case-holding

3.3.1 Case-holding reporting and terminology

The case-holding results show the outcome of treatment for the different types of TB cases in non-nomadic and nomadic areas. Results of the refugee camps are reported separately. Since 1999 the DLTLD started analyzing the outcome of treatment of smear-negative PTB and EPTB cases.

The terminology used in assessing the results of treatment (treatment outcome) includes the following:

Cured	: Completed treatment and smear-negative at the end of treatment
TC	: Completed treatment, but no smear taken at the end of treatment
Died	: Died of any cause during TB treatment
Failure	: Smear-positive at 3, 5 or end of treatment
OOC	: Out of control/absconded from treatment
TO	: Transferred out to another administrative area (province)
Success rate	: Proportion of PTB+ cases cured and completed treatment

3.3.2 Short Course Chemotherapy (SCC) implementation

Short course chemotherapy (SCC) for new smear positive PTB cases was initiated in 1993 and fully implemented in the whole country by the end of 1997. Implementation of SCC for Smear negative PTB and Extra-Pulmonary TB commenced in 1997 and covered the whole country by the second half of 1998. Since then, the whole country is under DOTS giving a 100% geographic DOTS coverage.

3.3.3 Regimen used

Kenya subscribes to the internationally accepted WHO strategy in TB control and treatment which has been tailored from WHO recommended regimes. Although treatment for TB in Kenya has been 8 months in total, in 2007 6 months regime using support from GDF was started in Nairobi province and expanded to cover the whole country by 2009. Additionally, the GDF support also included pediatric formulations that are now being used for the first time in Kenya.

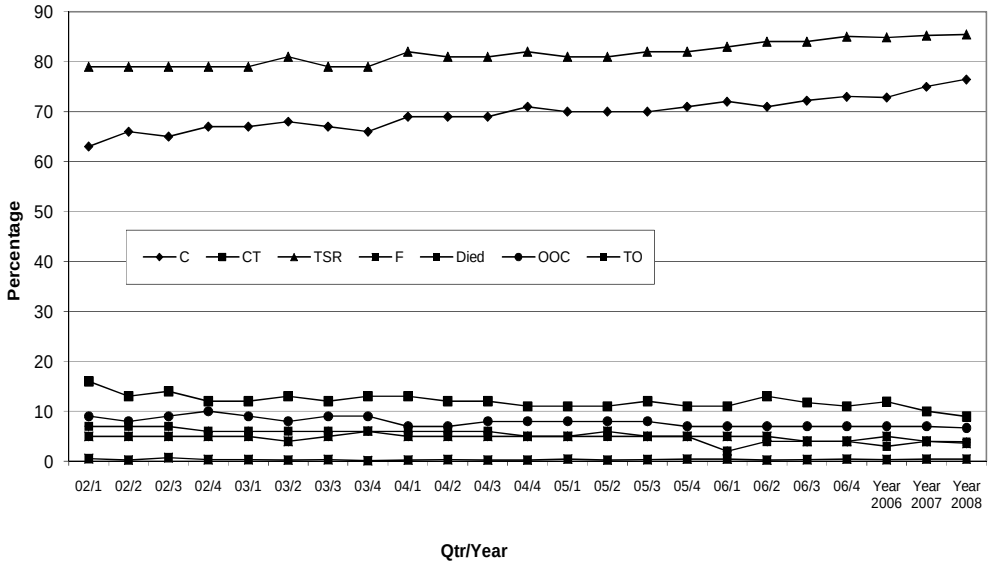
The following regimes continue to be used in Kenya:

1. 2RHZE/4RH for new cases with smear-positive PTB (Category 1), smear negative PTB and extra-pulmonary TB (Category 3)
2. 2SRHZE/1RHZE/5RHE (re-treatment regimen) for smear positive relapse cases, recurrent negative PTB/EPTB cases, failures and defaulters (Category 2).
3. 2RHZ/4RH for new cases of smear positive or negative PTB or EPTB who are younger than 15 years

3.3.4 SCC treatment results of new sputum smear-positive PTB cases

As is usual the TB treatment outcomes are reported for the year preceding the year in question, in this case the cohort of 36,811 patients put on treatment in 2008 was analyzed. A treatment success rate of 85.4% as in figure 16 was achieved. This puts Kenya amongst few countries that have achieved the WHO recommended treatment success rate. Coupled with the improved case detection rate of 72% that Kenya has also achieved, Kenya now stands to improve on TB control targets beyond what was initially put. This result is a very reasonable performance when the high rate of HIV in TB patients is taken into account. Tuberculosis cases co-infected with HIV are at risk of dying from non-TB opportunistic infections during treatment for TB. The reported death rates of TB patients remained low at about 5%, but an estimated 30% of the out of control cases are most probably cases who died at home and were not reported as such

Figure 16: Results of SCC treatment cohorts of new smear-positive PTB cases: 2002 - 2008

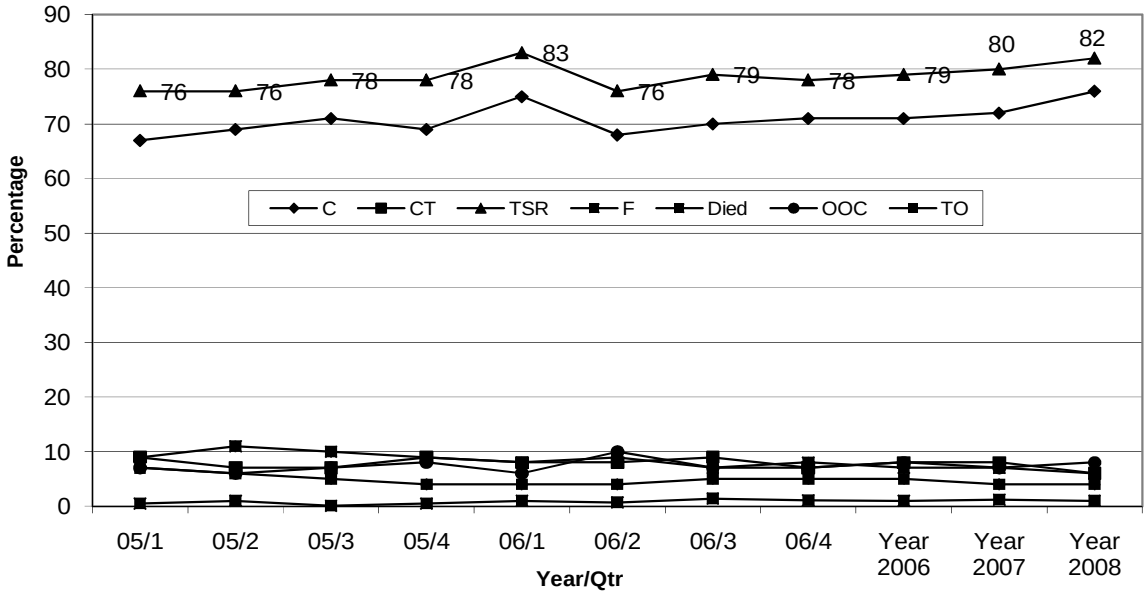


3.3.5 Re-treatment results

Since 2003 the DLTLD has put a lot of emphasis on obtaining sputum smear results during the continuation phase, and especially at the end of treatment as a known form of monitoring treatment. Put on re treatment regime are considered high risk for resistant strains of TB and subsequent development of resistant forms. Figure 17 shows that there has been a gradual improvement in treatment outcomes for this category of patients. This resulted in a small increase in the proportion of cases cured and an equally small decrease in cases that completed treatment without a smear result.

Figure 17: Treatment results for smear-positive re-treatment cases at 8 months: 2005-2008.

Results at 8 months (end of treatment)



3.3.6 Results of SCC treatment for smear-negative and extra-pulmonary TB cases

An 8 months SCC regimen replaced the 12-month standard regimen for sputum smear-negative PTB cases and Extra Pulmonary TB cases in 1998 *(see section 3.3.3 - Regimens used*).

The treatment success rates for new sputum smear negative and extra pulmonary PTB cases are 82% and 80% respectively, death rates were at 6% and the out of control rates 8% and 9% respectively (figure 18 and 19). This can be explained by the higher HIV prevalence in both categories of patients.

Figure 18: Treatment results for new smear negative PTB cases: cohorts 2002-2008

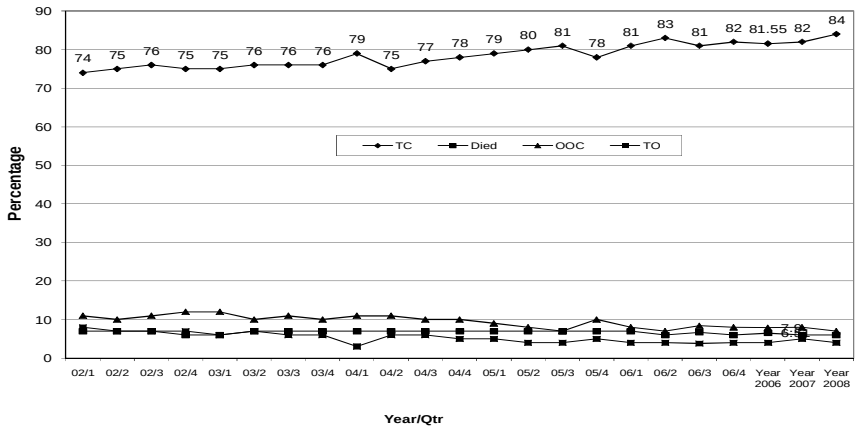
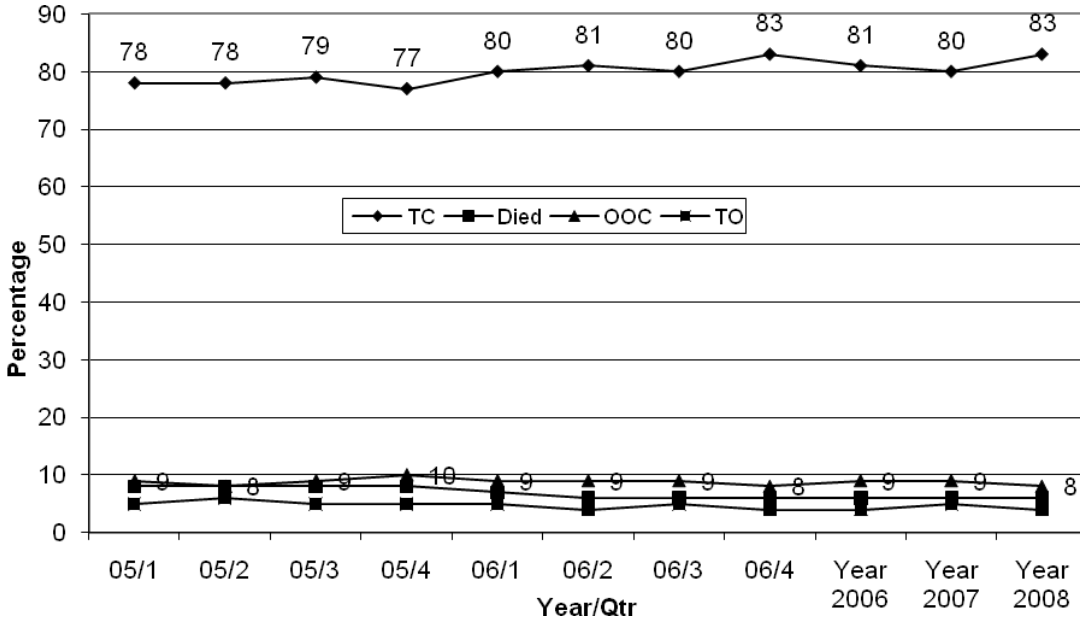


Figure 19: Treatment results new extra-pulmonary TB cases: cohorts 2005-2008



4 Sectional Activities

4.1 Leprosy control

Kenya is in the Leprosy post-elimination phase.

4.1.1 Key Activities

The leprosy program officer carried out a number of activities including revision of the leprosy M&E tools, development of diagnostic flow charts, support supervision and on job training of health care providers in leprosy endemic areas.

4.1.2 Capacity building

Owing to the decrease in number of leprosy cases, there is a general loss of competence of health care workers in diagnosis and management of leprosy. In order to facilitate continuous training and leprosy supervision, sensitization of DHMTs in four provinces (Coast, Nyanza north, Western and Eastern North.) was carried out by the national and provincial teams with the support of WHO.

4.1.3 Funding

WHO Kenya country office supported the printing of diagnostic flow charts and the DHMT sensitization meetings.

4.1.4 Challenges and Constraints

There has been minimal funding of leprosy control activities since its elimination in 1989. Consequently, there has therefore little or no training of staff on leprosy. The division therefore recommends on the job training of care providers during routine support supervision. This is not usually effective given the large number of health facilities to be supervised.

4.2 Community Based TB Care (CB-DOTS)

The Division of Leprosy, TB and Lung Disease (DLTLD) in line with international trends launched several new approaches aimed at increasing access to TB services as well as to expand population DOTS coverage. Community based TB Care program (Community DOTS) is one of the established initiatives launched in 2004 and aimed at promoting partnership between the health service and Communities in providing TB care services at the community level. The main objective of the Community TB care program in Kenya is to decentralize the TB services (diagnostic and treatment) beyond the fixed health facilities to the Community where most patients live. This initiative was expanded to include pro poor initiatives

4.2.1 Planned activities

In 2009, various activities aimed at expanding the community DOTS were identified by the TWG at the beginning of the year. These included:

4.2.1.1 Development of policy and policy documents

In response to the pro poor study finding, the DLTLD prioritized and implemented the recommendations to address the challenges faced by TB patients in accessing TB services.

A technical working group (TWG) was identified. So far three meetings have been held to deliberate on pro poor approach/initiative in Kenya and a policy draft document developed.

4.2.1.2 Sensitization of DHMT members and Divisional PHO on CBTBC

To facilitate effective implementation of CBTBC program, sensitization of district health management teams (DHMT) members and sub divisional public health officers (PHO) on CBTBC initiative was done.

Based on the 2007 TB treatment outcomes, the DLTLD identified districts to be supported to undertake various CBTBC activities to help improve performance. Seventeen districts that were implementing the community strategy were selected and 300 DHMT members trained.

4.2.1.3 Training of Health workers on CTBC Initiative

Following successful sanitization of DHMT members on CTBC during the first quarter 2009, a total of **235** HCW 13 districts comprising mainly of nurses, PHTs and RCOs were trained in the second quarter.

4.2.1.4 Participation in conferences and workshops

The CBTBC coordinator participated in various conferences and workshops including: PIA training of PTLCs and CU staff, Two Operational research trainings, ISO certification training workshop, TB/HIV MOST and IUALTD conference in Mexico.

4.2.1.5 Facilitation of District TB managers' course

In November, 12 DTLCs and 11 DMLTs underwent a 3 week District TB managers training in which the CBDOTS program officer was a facilitator. During this meeting the following recommendations were made:

- DLTLD to provide resources for CHEWS/CHWs quarterly meetings to facilitate prompt and accurate reporting on CBTBC indicators.
- DLTLD to avail funds to facilitate training of CHEWs, implementing partners and CHWs.
- CU / PTLCs to improve on supportive supervision to implementing sites, allocate funding to facilitate establishment of patient support groups (both EX-TB and current motivated patients) and provide CBTBC materials (IEC materials, CHWs diaries, referral forms).

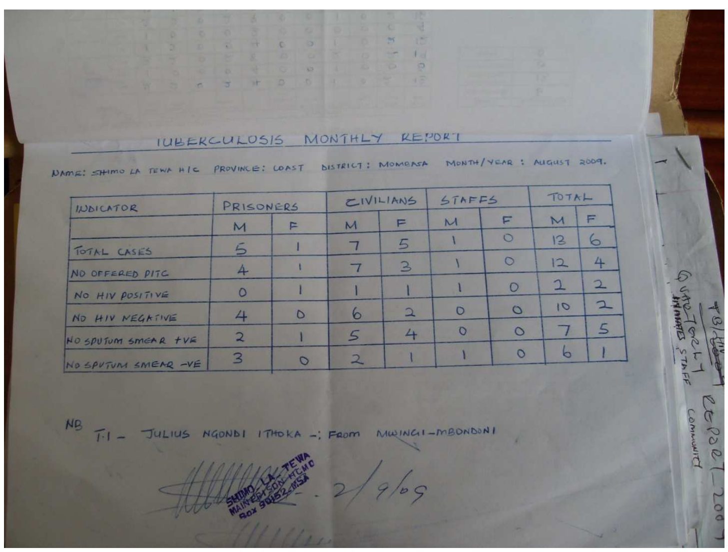
4.2.1.6 M & E Supportive supervision

CBTBC M&E is done along the routine program technical supervision. In the year, two regions (Nairobi South and North) were visited during which two community groups based in Dagoretti and Langalanga Health centres were visited. The two Health facilities have community units in place and both have active CHWs attached to them. The CHWs at Dagoretti have registered their group with ministry of social services

4.2.2 Funding

A total of Ksh 1,088,000 and Ksh 2,002,200 from WHO were used for DHMT sensitization and Training of HCW and TB treatment supporters respectively.

Dagoretti Community health workers, Riruta HC, provincial and CU staff during a support supervision visit.



TUBERCULOSIS MONTHLY REPORT

NAME: SHIMO LA TEWA H/C PROVINCE: COAST DISTRICT: MOMBASA MONTH/YEAR: AUGUST 2009.

INDICATOR	PRISONERS		CIVILIANS		STAFFS		TOTAL	
	M	F	M	F	M	F	M	F
TOTAL CASES	5	1	7	5	1	0	13	6
NO OFFERED PITC	4	1	7	3	1	0	12	4
NO HIV POSITIVE	0	1	1	1	1	0	2	2
NO HIV NEGATIVE	4	0	6	2	0	0	10	2
NO SPUTUM SMEAR +VE	2	1	5	4	0	0	7	5
NO SPUTUM SMEAR -VE	3	0	2	1	1	0	6	1

NB
T.I - JULIUS NGONDI ITHOKA -: FROM MWINGI-MBONDONI

2/9/09

CHWs involvement in recording and reporting

4.2.3 Challenges and constrains

- Inadequate funds to support the implementation of various CBTBC activities such as training and incentives for CHWs.
- Inadequate reporting on community TB activities by the districts (Many districts not utilising the referral tools)
- Sustaining the retention of trained Community Health workers
  - up to 12% drop out is reported in some districts

  - community health workers allocated tasks meant for professional health staff
- Minimal participation of DTLCs in the implementation of community strategy
- Weak linkages between communities and facilities except where CHEWs are in place
- Weak Coordination of CHWs except in areas with CHEWs
- Inadequate CBTBC Materials especially the referral and reporting tools

4.3 Monitoring and Evaluation

Throughout the year, this section continued to spearhead monitoring and evaluation activities for various programs within the national office and the field as well as manage routine TB, Leprosy and MDRTB surveillance data. The section planned and carried out support supervision to the provinces. Although during this period supervision was not done as planned, the section is redirecting its supervision focus on the 30 poorly performing districts. In the coming year, 2010, support supervision will be intensified to all regions and particularly in these districts.

M & E section during the year provided support to other sections of the division including developing work plans, program indicators as well as the study protocols for Drug resistance survey and the TB prevalence survey to be funded under the global fund round 9.

During the year the division in collaboration with KEMRI, KNCV Tuberculosis foundation, KAPTLD and other partners successfully held the country's first Lung Health conference. This conference brought local and international experts in TB and HIV control giving program staff at various levels an opportunity to present their scientific and programmatic research findings.

4.3.1 Capacity building

M&E officers trained 129 DTLC's on monitoring and evaluation through the support of global fund round 6. Through CDC funding, training of DTLC's on the use of computers and PDA's was done in the four TB control provinces (Nyanza North and South, Nairobi North and South).

4.3.2 Technical Support

Support supervision was provided to all the 12 TB control provinces in the year 2009.

4.4 *TB HIV collaborative activities*

Tuberculosis and HIV/AIDS continue to gain public health importance in Kenya in this era of drug resistant TB (MDR and XDR TB). In 2009, 110,065 cases were reported; this was a 7% decrease from 110,251 cases reported in 2008.
Human Immunodeficiency Virus continues to fuel the TB scourge in Kenya while TB remains the largest killer of HIV infected patients. In 2009, 44% (42,210) of the notified TB cases were HIV infected. DLTLD and its partners continued to step up the fight against the dual epidemic through implementation of TB HIV collaborative activities.

The TB HIV collaborative activities focus on three main objectives as stipulated in the WHO Interim policy and from where the Division of TB, Leprosy and Lung Disease division borrows heavily. These objectives are:

- Setting up mechanisms of collaboration between the HIV and TB program
- Reducing the burden of HIV amongst TB patients
- Reducing the burden of TB amongst People living with HIV/AIDS

Introduction of TB/HIV collaborative activities was done through a stepwise approach starting with revision of TB data collection tools to capture both TB and HIV variables, development and adoption of policy guidelines including training materials and ensuring that there were teams to roll out training in quality assured standard manner throughout the country. By Quarter 1 of 2006, all the districts were using the revised tools which enabled monitoring and 33 evaluations including analysis of the implementation of the activities. In 2009 there was a scale up of implementation of 11 of the 12 TB HIV collaborative activities. However IPT was not widely implemented due to challenges faced in the field in properly and effectively ruling out active TB before initiating IPT and follow up of the patients to ensure that they complete therapy. There are fears that widespread use without ensuring proper adherence could lead to development of resistance.

4.4.1 Key activities

4.4.1.1 Strengthening Mechanism for Collaboration

In 2009, TB HIV committees at national, provincial and districts levels held their quarterly collaborative meeting for the year.

In a move to further strengthen collaboration, DLTLD, NASCOP and partners held Management and Organization Sustainability Tool workshop (a joint planning meeting) in the third quarter. This meeting brought together key players in TB/HIV at national and provincial levels who reviewed the progress in implementation of TB/HIV collaborative identified weakness set targets and came up with strategies to achieve a common goal.

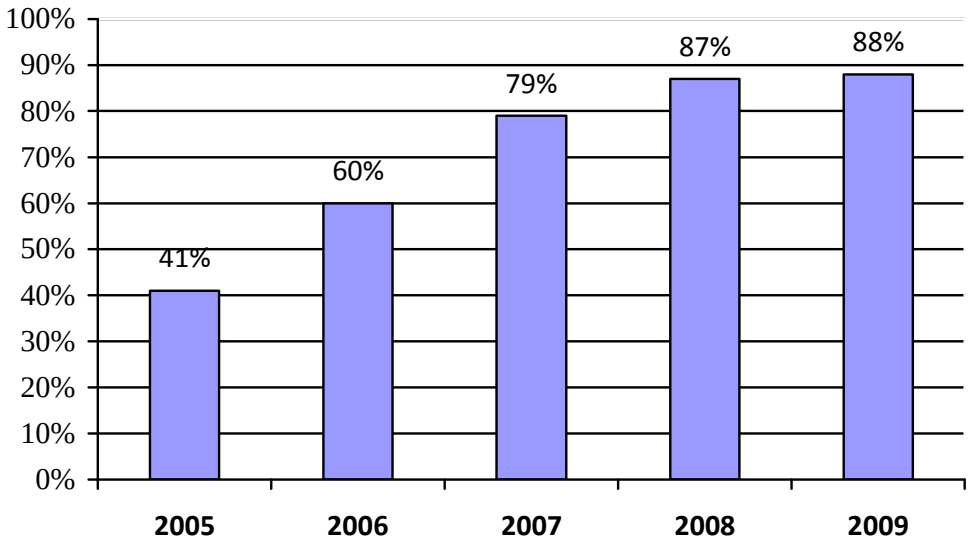
DLTLD continued to strengthen HIV surveillance among TB patients. TB/HIV data was collected and transmitted electronically in 5 TB regions including Nairobi north and south, Rift valley north, and Nyanza north and south.

4.4.1.2 Reducing the burden of HIV among TB patients

Testing for HIV in TB clinical settings through Provider Initiated Testing and Counseling (PITC) protocol offers the entry point to comprehensive care for dually infected patients in

Kenya. The country adopted the WHO and UNAIDS policy on testing through policy guidelines *'HIV testing in clinical settings'* in October 2005. Testing for HIV is offered in the context of the three C's (counseling, Consent and Confidentiality). To guide implementation and to monitor progress, the division set up targets (for 2009) to be met at all levels for HIV testing of TB patients at 90%. However the division achieved 88%, falling short of this target by 2 points. Five of the provinces achieved this target. However seven regions including Western, Nyanza North, Nyanza South, Rift valley North, Rift Valley South, Nairobi North and Nairobi south need to intensify PITC as the division gears towards the ultimate goal of universal routine testing for HIV amongst all TB patients and suspects.

Figure 20: DTC Uptake in Kenya



In an effort to prevent and manage opportunistic infections, to improve the quality of life as well as TB treatment outcomes of the dually infected, DLTLD has progressively increased the proportion of patients receiving cotrimoxazole. By the end of 2009, 92% (38,989) of all HIV infected TB patients had been put on CPT. This was 12% above the years 80% target.

Concomitant ART during TB treatment is well documented to improve TB treatment outcomes among the HIV co-infected. The DLTLD collaborates with NASCOP to provide ARV to TB patients. In 2009, 34% of HIV infected TB patients were put on ART. This was an improvement from 31% the previous year. However the national target of 50% is yet to be reached.

The division has continued to plan for and provide HIV infection prevention methods in all its sites including risk reduction (condom promotion and distribution etc). In 2008 the DLTLD deliberately engaged HIV infected TB patients in PwP; an intervention that calls for meaningful involvement of PLHIV in prevention of the spread of HIV. By 2009, 21% of HIV positive TB patients' sexual partners were invited and tested for HIV. This was an improvement compared to 16% in 2008.

4.4.1.3 Decreasing the burden of TB among PLHIV

Although the target for TB screening among HIV patients was set at least 20% of PLHIV, this remained largely un documented partly due to lack of appropriate recording and reporting tools. Cognizant to this, NASCOP and DLTLD TB/HIV focal persons developed a draft tool and later called for a 3 day stakeholders meeting to discuss the tool and come up with the final draft to be used in the field. The roll out plan for ICF was discussed and the tool printed and distributed to the provinces. It is hoped that by the end of 2010 TB screening in PLHIV would have picked up to allow review of the national policy on IPT. Currently the implementation of IPT is limited to selected settings that include:

- Congregate settings; prisons, military, children homes
- Target groups; HCW, children exposed to open TB
- Selected Health programs which have adequate systems and structures; e.g. EDARP, AMPATH, MSF
- Controlled research programs

4.4.2 Capacity building

At the national level Dr. Weyenga the DLTLD TB/HIV focal person was supported to attend a three Week Union tuberculosis course in Arusha. The funding support was from USAID through TBCAP. He was also supported to attend a five day operational research workshop in Blantyre Malawi.

During the year peripheral health care workers underwent training to improve their capacity in managing the dually infected patients. A total of 1,927 providers were trained with partner support in various regions.

4.4.3 Research

The TB/HIV focal person also in charge of support and care section evaluated the MDRTB surveillance system and presented the findings in the 5TH TEPHINET -3RD AFENET conference held in Mombasa in September.
In collaboration with the NASCOP, he also participated in writing an abstract on the scale up of the 3Is in Kenya. This abstract was presented both at the first lung Health Conference in Kenya and at Cancun Mexico. With the support of the DLTLD, FELTP and CDC he conducted a case control study on factors associated with MDRTB in Kenya.

4.4.4 Funding

Funding for TB/HIV collaborative activities was received from various sources including global fund, CDC and USAID through TBCAP and APHIAs.
Activities funded during the year included Trainings procurement of M&E tools and logistic support

4.4.5 Challenges

One of the greatest challenges facing the dually infected patient relates to linkages to Comprehensive care and treatment, and specifically linkages to ART. This weakness is basically because a TB HIV patient that has been identified in the clinic is referred to the

ART clinics. Although TB services have been decentralized to the community, HIV services are still limited to specifics sites. In 2009, only 34% (12,426) of TB HIV patients were put on ARV's as compared to 94% (37,757) on cotrimoxazole which is offered at the TB clinics

.

Other challenges that continue to impede implementation include how to strengthen health care delivery systems to sufficiently respond to increasing resource demands, financial, human resource, logistics and infrastructure. In particular, there is shortage of funds to train all health care workers in all health facilities (both public and private), creation of space in the TB clinics to respond to demands for testing for HIV and for offering counseling.

The Implementation of TB/HIV collaborative activities in HIV settings remain largely un documented.

Funds for training of HCW have been through partner support and in particular CDC, TB CAP and WHO, PEPFAR. None PEPFAR funded Partners in the field have also played a key role in supporting training of health care workers.

4.5 Infection prevention and control

The urgency of addressing TB infection control practices in all settings where diagnosed and undiagnosed TB patients receive care or other services have been highlighted by the impact of HIV epidemic and the increasing prevalence of drug resistant TB. TB infection control is a combination of measures aimed at minimizing the risk of TB transmission within populations. By the end of 2009, a total of 451 MDR cases had been identified and only 93 out of these had either completed or were on treatment. This left a large number of MDRTB patients in the community untreated possibly transmitting drug resistant TB.

4.5.1 Key activities

4.5.1.1 Development of policy guidelines

The guidelines for TB Infection prevention and control were finalized and operationalized in 2009.

The division printed 700 copies while Malteser International supported the printing of 450 more copies. These guidelines were disseminated through the PTLCs.

The officer coordinating TB IPC activities was also involved in the development of the overall National Policy and Guidelines on Infection Prevention and Control.

4.5.1.2 TB infection risk assessment

The DLTLD with technical assistance from KNCV Kenya contacted a TB infection risk assessment in both private and public health facilities. Technical advice on the most appropriate and cost effective methods to reduce the risk of TB infection both to the HCWs and the general population was offered. The hospitals included in the assessment were KNH, Nairobi Hospital, Nakuru PGH and Langalanga Health Center.

Some of the major findings included, Lack of policy guidelines, lack of control points and triage, limited staff knowledge on TB IPC, haphazard collection of sputum, unmaintained bio safety cabinets, inappropriate use of rooms and lack of knowledge on existence and use of respirators.

4.5.2 Capacity Building

4.5.2.1 Local TB infection prevention training and sensitization

The TB infection risk assessment was followed by one day training on TB Infection prevention. The trainees included Central Unit Staff, all the PTLCs and partners. A total of 48 people were trained. One thousand pieces of N95 respirators were bought by the division and distributed to the centres that were managing MDR patients.

4.5.2.2 IPC training of High volume hospitals

Following the findings from the risk assessment exercise earlier conducted, health care workers were sensitized and trained on TB IPC. The national office together with KNCV trained teams of four comprising of the NO I/C, Lab I/C, PHO I/C, and the IC focal person from the following hospitals - MTRH, New Nyanza, Nakuru, Thika, Embu, Nyeri, Machakos, Kakamega, Kisii, Coast, Kitale, Garissa. These teams were earmarked for a TOT training in 2010 so as to roll out TB IPC trainings on the ground.

4.5.2.3 Sensitization of HMTS

Funds were disbursed to PTLCs to carry out sensitization of HMTs in all high volume hospitals and in particular all provincial hospitals.

4.5.2.4 International IPC training

The division in collaboration with TBCAP sponsored an engineer from KNH and Rural Health Project Architect from the ministry to Harvard for TB infection control training for Engineers/Architects-Harvard. The two have since been involved in training health workers on the same.

4.5.2.5 MDRTB patient Isolation

So far there are only three MDR treatment centers with isolation facilities namely MTRH which houses the X-DR TB patient, Homabay and KNH. However there is need for construction of more isolation wards at least in the regional hospitals for management of MDRTB cases that require admission.

4.5.3 Funding

TB IPC activities were funded through CDC, TBCAP and WHO

4.5.4 Challenges and Constraints

- Most hospitals were constructed without bearing TBIPC in mind
- Limited human resource for implementation of TB IPC
- Limited funding for renovation of TB clinics

4.6 Nutrition

Tuberculosis and malnutrition are closely related. Under-nutrition may increase the life time risk of active TB six fold although there is limited evidence. Malnutrition in tuberculosis tends to persist and is associated with poor TB treatment outcomes.

In 2009, the DLTLD under took many activities in support of nutrition in TB.

4.6.1 Key Activities

4.6.1.1 Development of nutrition guidelines

The first guidelines for nutrition management in tuberculosis were developed. Through partner support the first edition was finalized and printed in October and disseminated to all the regions.

4.6.1.2 Initiation of nutrition M & E

Two nutrition indicators (BMI& nutritional support) were identified and incorporated into the main TB data capturing and reporting tools for routine M&E.

4.6.1.3 Development of training materials

Nutrition training materials were developed and included in the National TB/HIV training curriculum. This was piloted in Nairobi TB regions.

4.6.1.4 Advocacy and resource mobilization

The unit was involved in advocacy and resource mobilization at various levels. This resulted in increased GOK and partners support for nutrition in TB. Some of the activities that were supported in the year include;

- Provision of 40 weighing scale to Western province by the division of nutrition
- Provision of food supplementation to under nourished TB patients by APHIA II Central and Nairobi.
- Provision of ready to use therapeutic food and Ready to Use Supplementary Food feeds to the Co-infected patients also on ARTs by the World food program (WFP) and USAID through the Nutrition Health Program (NHP) / Academy for Education (AED) /NASCOP. However TB patient without HIV do not benefit from this arrangement.

4.6.1.5 Supportive supervision

The nutrition program officer participated in supportive supervision in several regions. During the visits, the officer lobbied for nutrition support to TB clinics among nutrition officers in the field.

4.6.2 Capacity building

4.6.2.1 Sensitization on nutrition assessments

Sensitization of provincial nutrition officers, key partners offering nutritional support and PTLC'S was carried out on in Nakuru to rally for support at the provincial levels and to build the capacity for the further trainings within the TB regions.

4.6.3 Funding

In most of the year there was no funding for nutrition activities. However in the last quarter, CDC through the CDC-MOPH CoAg Provided funds for trainings and sensitization of Health care providers.

4.6.4 Challenges and Constraints

- Limited funding of Nutrition activities.
- Lack of support for food by prescription
- Lack of equipments for nutrition assessments
- Linking nutrition activities to the community TB and pro poor strategy and Leprosy.
- Nutrition knowledge gap in both public and private care setups

It is hoped that in the New Year, more funds will be available to support nutrition activities.

4.7 MDR TB/Central Reference Laboratory

The year 2009 started with a lot of activities and plans. The unit received a new MDR TB coordinator who was tasked to act on the recommendation made during the previous year's GLC teams visit.

4.7.1 Key Activities

4.7.1.1 Revision of drug resistant TB guidelines and SOPs

The MDRTB guidelines were revised and the second edition produced.
Standard Operating Procedures to guide patient management from the point of identification of DR TB patient to the initiation of treatment were developed.
Other documents that were developed and printed include contact tracing tool, DR TB registers, patient cards and referral forms.

4.7.1.2 MDRTB consensus building meeting

A consensus building meeting was held in Nakuru to harmonize MDR TB treatment delivery and care models. The following models were agreed upon:

- Isolation: This was only for patients who medically require admission, refugees and mobile populations
- Facility based/Ambulatory: In this model, the patient attends the facility for care on a daily basis. This model was widely accepted as the best method since it appeared to be cost effective method of treatment.

- Community based: This was also considered as a good method of treatment delivery. However shortage of staff and resources were sighted as the reasons why it was not practical in our setting. The method would therefore be applied during the continuation phase in which community health care workers would be used to observe DOT. The community based model was being piloted in North Rift (MTRH).

4.7.1.3 MDRTB management

The GLC approved treatment of 40 patients in 2004. By March 2009 the 40 had been initiated on treatment. Followed by a six month period when there were no drugs to initiate new cases on treatment. An application was made to GLC requesting an increase of patients on treatment by 50. The application was approved and drugs received from UNITAID and Global fund.

The number of treatment sites was increased from 4 to 8. Fifty patients put on treatment in the second half of the year, the GLC team re visited the country with the aim of assessing the TB programs capacity to manage MDRTB. Following this assessment this assessment the country was allowed to increase number of MDRTB cases on treatment from 90 to 390.

4.7.2 Capacity building

4.7.2.1 Trainings

Capacity building on MDRTB management was required for a successful scale up of MDRTB treatment. Forty health care workers were trained on MDR TB using funds from CDC. More training in the provinces were carried out with funds from other partners in the regions. Two program officers at the Central unit were trained on MDR TB in Philippines while two more underwent the international tuberculosis course at Arusha.

4.7.3 DR TB case finding

In 2009 a total of 150 MDRTB cases were identified and notified to the WHO. One XDR TB patient was isolated and initiated on treatment in Moi Teaching and Referral Hospital.

MDR TB treatment Outcomes 2006-2009

Facility/region	Cured	defaulter	dead	still on RX	Total
Coast	0	0	0	9	9
MTRH	0	0	0	9	9
Loitoktok	0	0	0	1	1
KNH	3	4	6	28	41
Blue House	12	2	3	16	33
Homabay	4	1	4	13	22
Dadaab	0	0	0	3	3
Nyanza N	0	0	0	2	2
Total	**19**	**7**	**13**	**81**	**120**

Kenya has 8 treatment centres. A cumulative 110 patients have been initiated on treatment with 50 of them being initiated on treatment in 2009. So far among patients who were enrolled on treatment at least 24 months before the end of 2009, 19 (48.7%) were cured. Unfavorable treatment outcomes occurred in 15.4% of the cases. In 2009, the number of defaulters and deaths reduced. This was attributed to the patient support provided to the patients and closer monitoring. It was also attributed to the access and availability of drugs.

Central reference TB laboratory (CRL-TB)

The Central reference TB laboratory plays a critical role in MDRTB diagnosis, surveillance, and patient management.
During the year, the Central reference laboratory ensured that:

- Drug resistance testing was done among previously treated TB cases (FLD/SLD)
- Laboratory processes are quality-assured in cooperation with a partner supranational reference laboratory.
- Strengthening laboratory information and surveillance systems is done to ensure detection and monitoring of the epidemiological profile of mono resistant, poly, multidrug-resistant and extensively drug resistant tuberculosis and monitor achievement in its prevention and control.

MDRTB surveillance was contacted among retreatment TB case and their contacts. By the end of 2009, sputum for 65% of all the retreatment cases and MDR contacts in the country had been submitted to the CRL for routine culture and DST. This was below the national target of all (100%) sputum submission for the retreatment cases.

Table 6: Trend of sputum submission to CRL 2005 to 2009

Year	**2005**	**2006**	**2007**	**2008**	**2009**
Sputum Samples	1,460	2,511	4,403	5,135	6,569
Number of retreatment cases	8,975	10,299	10,462	10,444	10,676
Percentage submission	16%	24%	42%	49%	65%

Figure 21: Sputum submission to CRL province 2009.

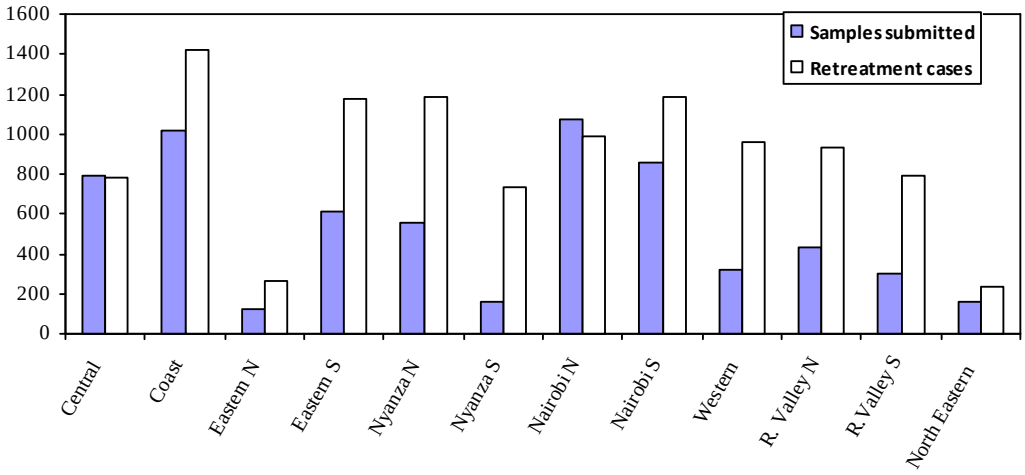


Figure 21 shows the breakdown of submission of re treatment samples for DST to the CRL The CRL has taken advantage of the funding support to make available, sufficiently trained and motivated staff to enable diagnosis, treatment and care of tuberculosis including multidrug-resistant and extensively drug-resistant tuberculosis, as an integral part of efforts to address the overall health workforce crisis; strengthening laboratory systems, through increasing capacity and adequate human resources, and accelerating access to faster and quality-assured diagnostic tests through technology transfer at the Reference TB laboratory.

4.8 Global fund

The global fund remains a substantial source of funding for TB control in Kenya. The country has so far been involved in implementation of three grants: Rounds 2, 5 and 6 grants providing a potential financing of USD: 47,726,841 out of which USD: 7,343,914 (15% of the approved funds) has been received and USD: 4,593,502 (66% of the funds received) spent over the last four years. Implementation of round 2 came to a closure in October 2008 though the closure plans have not been finalized. This round greatly looked at instrumental activities such as introduction of TB/HIV activities and community TB, assisting the division to train 2,541 health care workers and 1,182 community health care workers. This enabled the program to be able to test for HIV up to 88% of all TB patients registered annually and hence providing an entry point to accessing HIV care which includes cotrimoxazole prophylaxis, ART, PwP etc

During the year, the division constituted a team to specifically address global fund issues made of a focal officer, M and E officer, an accountant and a procurement officer.

4.8.1 GF Round 5

GF Round 5 support aimed at strengthening MDRTB surveillance and treatment. Through these funds the following activities were supported in 2009.

- Setting up of 13 new AFB diagnostic centers
- Training of 567 laboratory staffs on external quality assurance

- Construction of the isolation facility for MDRTB treatment at Kenyatta National Hospital (KNH) that was completed in November 2009 though not finalized.
- Support supervision to 20 districts

This grant also has an advocacy, communication and social mobilization component that is expected to raise the awareness level on TB among the population through but not limited to mass media campaign activities. During the year the division was involved in the negotiations for phase II which began as early as March. Due to improved coordination, fund utilization and improved implementation of activities including timely and complete reporting, this grant score improved resulting in a better score (B1) for 2009 compared with C in the previous year.

4.8.2 GF Round 6

Round 6, was signed on 30th October 2007 and funds disbursement done in April 2008. Most of the activities in this grant were implemented in 2009. These include:

- Setting up 50 new laboratories with equipments, furniture and staff.
- Capacity building health care workers in the following areas TB/HIV, Monitoring and Evaluation, health management, AFB microscopy for managers and
- Workload assessment.
- A workshop held to incorporate TB/HIV curriculum into curricula of training institutions and also printing of guidelines and laboratory standard operating procedures.

The TB grants have also strengthened the program infrastructure especially in provision of transport (additional 9 vehicles, 15 motorcycles and 780 bicycles), diagnostic capacity (100 microscopes and procurement of lab reagents), renovation of laboratories, support to program officers with equipments e. g laptops and LCD machines and in provision of first line and second line anti-TB drugs. A lot of information, education and counseling materials including radio spots, posters have been developed, printed and disseminated Global Fund support.

Part of the global fund support has been channeled through 18 Non-governmental organizations with 11 them in round 5 and 7 in round 6.

The global fund grants have contributed greatly towards the program's achievements including a cure rate of 82%, treatment success rate of 85.4% and DTC uptake of 92%.

4.8.3 Challenges and constraints

The biggest challenge and constraint to implementation of GF activities remain timely submission of reports for activities implemented. GFATM is a performance based grant and continued flow of funds is based on outputs and outcomes of the planned activities with timely submission of reports. Information on implementation of the activities has not been flowing as smoothly as anticipated but has recently improved. The division expects to perform better in 2010 and subsequent years owing to the establishment of a fully functional Global Fund unit within the division with staff from M and E, Lab, Pharmacy, Accounts, procurement and management. Communication at various levels of management and implementers has been a challenge.

4.9 Pharmaceutical Unit

This unit is responsible for handling the supply chain management of the divisions' medicines in order to avoid interrupted supply to all facilities in the country.

The unit had two pharmacists and two record officers in 2009. Many projects were undertaken throughout the year.

4.9.1 Key activities

4.9.1.1 Implementation of Shorter TB regimen and Quality control of TB medicines

A new, shorter (six month) and more potent anti-TB regimen i.e. 2RHZE/4RH was finally phased into the country's all TB regions as the old eight month i.e. 2RHZE/6EH was completely phased out by the end of the year. This change of TB treatment regimen took place over a two year period. Among the many lessons learnt is that implementation of new treatment programs needs a systematic and clear strategy in order to have a smooth change over.

4.9.1.2 Post market surveillance

A post market surveillance of first line Anti-TB medicines was carried out in April/May. Sampling of TB medicines was done in 77 sites from the 12 TB regions in the country. These sites included public health facilities, mission hospitals, KEMSA warehouses and some selected private providers. Close collaboration between the DLTLD, Pharmacy and Poisons Board and the pharmacists in the public sector was made possible and future joint efforts have been encouraged for sustainability of programs relating to quality control of medicines.

This activity was part of the effort to monitor quality of available TB medicines to ensure good and efficacious medicines (one aspect of pharmaco-vigilance) are always aviled to Kenyans. The samples were taken for analysis to the National Quality and Control Laboratory. By the end of the year the final report was being compiled.

4.9.1.3 Missions and Meetings

A Global Drug Facility (GDF) mission was done in March where two consultants from GDF i.e. Dr. Mamadou' Cisse (supply management expert) and Mr. Jerod Scholten (public health expert) participated in this annual supervisory visit. The GDF mission was to assess the country's preparedness to garner the second year support of pediatric TB medicines from GDF. This mission was very successful since the country was fully prepared.

Several recommendations were made by the GDF consultants to further strengthen TB medicines management in the country. These recommendations have been adopted.

The unit formed a national coordinating commodity management committee with specific terms of reference early in the year. Several committee meetings have been held and this has led to streamlining of commodity management activities in the division including involving other partners and technical experts in this field. The commodity management meetings were supported by Management Science for Health (MSH).

A DLTLD commodity design workshop was held in Nyeri as a consultative mechanism in the futuristic way of managing DLTLD commodities. The meeting was attended by mainly pharmacists and health practitioners (PTLC's and DTLC's) within the division and ministry including the division of vaccines and immunization (DVI), MSH, KEMSA, KAPTLD and TBCAP. Several recommendations and action points were made during this two day consultative meeting which guided the division in implementation of various commodity management activities during the year.

An international UNITAID implementer's meeting took place in Nairobi where all countries receiving support from UNITAID participated. The meeting had a high profile attendance with the Minister of Public health & Sanitation opening this global meeting.

4.9.1.4 Quantification and Funding for DLTLD commodities

Quantification and forecasting exercise was conducted to ensure commodity security. This exercise involved the use of Quantimed software in calculating the division's two year commodity requirements (2010/2011) for medicines and laboratory reagents and equipment. A concise report was reproduced for this exercise listing the commodity requirement and finances required in having these commodities. Technical and financial support was through MSH, KNCV/TBCAP and Global fund procurement and supply chain consortium.

4.9.2 DLTLD commodity financial gap analysis for 2010 and 2011

The funding for DLTLD commodities was made possible through support from the Government, Global fund, WHO, GDF and UNITAID (supported extra 40 MDR-TB patients to be initiated on MDR-TB treatment). The division managed to get funding from the Government to support commodity distribution through KEMSA and this has gone a long way in supporting efficient commodity distribution to the districts.

The World Bank TOWA funding for first line TB commodities was still being processed and the agreement and requirements were finalized and submitted to WB for procurement. It is anticipated that the commodities from this support will reach the country

4.9.3 Logistic Management Information System and Capacity Building

The LMIS system was rapidly scaled to cover the country including Coast, Central and Nyanza. This will ensure that the whole country shifts to pull system. The Logistic management unit in KEMSA was handling all commodity reports and resupplies on a quarterly basis. LMIS tools i.e. facility consumption and data report and request form (CDRR), district CDRR and daily activity drug register (DADR) were revised, printed and distributed through support from MSH. In addition, through MSH support, three day

commodity management training was conducted before the LMIS was introduced to the regions.

The unit managed to change the supply system from supplying regional stores to district stores for the following regions: Eastern south, Coast, Central, Northeastern, Eastern north and Rift valley south. In 2010, the unit will focus on having the whole country on this supply system as it has proven to be more cost effective, faster, and convenient and the district coordinators get involved in having good commodity management practices within their districts in collaboration with the pharmaceutical personnel.

The unit managed to include a module on commodity management during the TB/HIV curriculum review meeting held in Nakuru. This inclusion has led to improved TB commodity management practices in the field.

During the year Dr. Richard Muthoka attended a two week TB/HIV training in Addis Ababa sponsored through ALERT/ARCAN and also was a key facilitator during the DTLC three week curriculum training in Mombasa. He also participated in the Green light committee mission for Multi-Drug Tuberculosis.

Dr. Chris Masila graduated with a Master of Business Administration from Strathmore Business School. He also attended a CDC/Emory university course in epidemiology. Additionally, he attended an advanced project management course offered by OTE academy, Greece. He also participated in drafting of proposals for the division in World Bank and CDC projects.

4.9.4 ISO 9001:2008 certification process

The Division was selected by the ministry of public health and sanitation as a pilot for implementation of quality management system. The division began to commute the 17 steps process towards attaining a mark of quality and reputation in the healthcare sector. The first step for the division was to participate in the sensitization of senior management at the ministry.

The DLTLD staff was involved in three day training in ISO certification process offered by Kenya Bureau of Standards and a project team was identified to lead the process in having the division ISO-certified.

4.9.5 Achievements

- Full implementation of the six month TB regimen in all regions.
- A quality assurance and control framework for monitoring TB medicines established.
- A commodity management steering committee formed.
- A commodity management curriculum developed in order to train health workers in TB settings.
- LMIS system was rolled out to other regions and funding identified from Government in supporting distribution costs for commodities under KEMSA.

- The supply system was changed from supplying commodities to the provincial stores to district stores which has several advantages compared to the previous system.
- The unit developed a good networking and close collaboration with partners like MSH, PPB, DVI, Global fund, KNCV/TBCAP, GDF, WHO and World Bank.

4.9.6 Challenges

- Delay in distribution of TB/leprosy commodities and servicing orders by KEMSA.
- Late and low reporting rates (less than 50%), therefore leading to challenges in quantification and forecasting of commodities.
- Inaccurate filling of LMIS tools due to lack of training especially for DTLC's and other health care workers.
- Involvement of pharmacists in TB commodity management including in disposing off of expired commodities.
- Handling expired commodities in the field since resources for destruction of these commodities was not available.

4.10 Advocacy, Communication and Social Mobilization (ACSM)

This report covers the activities undertaken by the Advocacy, communication and social Mobilization Unit from 1st January 2009 to 31st December 2009. During the period under review there were many activities planned for. Some of the activities were achieved while others were not achieved. Few highlights of the setbacks and challenges are mentioned in the report.

The stop TB strategy has six elements recommended by World Health Organization adopted by government of Kenya through the Ministry of Public Health and Sanitation. These activities include ACSM which call for high political commitment in the resource allocation, creation of public awareness on TB and mobilizing the communities, persons affected and infected by TB to own up activities and play a leading role in prevention and in TB control activities.

4.10.1 Planned Activities

- Development, production and dissemination of ACSM guidelines (ACSM training manual, Strategic plan, sensitization guide for health workers and community
- Development, production and dissemination of ACSM IEC /promotional materials e.g. brochures, pamphlets, posters and stickers
- Sensitization of health workers from the private and public health facilities on TB/HIV stigma reduction
- Sensitization of Civil society organizations on TB/HIV and ACSM
- Sensitization of the provincial heads of departments
- Training of the media personnel on TB/HIV and ACSM
- Planning and commemoration of Word TB day 2009
- Development and placement of adverts and supplements on newspapers
- Planning and Participating in Nairobi International Show and Public Civil Services celebration week (creation of awareness on TB and leprosy)
- Planning and holding stakeholders meetings on TB ACSM

- Conducting support supervision to 12 TB zones on quarterly basis
- Attending DLTLD meetings

4.10.2 Activities

4.10.2.1 World TB Day

The 2009 Wo**r**ld TB Day was commemorated on 24th March 2009. The theme was: **I am stopping TB: Together we can do it.** The climax of WTBD was carried out at Kibera with the police band leading the procession to the venue. This was attended by various stakeholders with the Minister of Public health and Sanitation, Hon. Beth Mugo being the chief guest. All the regions were supported to hold the event in their respective regions.

4.10.2.2 Nairobi International Show and Public Service week

The division participated in Nairobi International Show and Public Service week to create awareness on TB, TB/HIV and Leprosy. A total of about 50 thousand children and 75,000 adults were reached.

4.10.2.3 Adverts and supplements in newspapers

The division managed to develop and place supplements newspapers during the World TB Day 2009.

4.10.2.4 Branding of buses

The Division uses branding as part of a tool to pass messages to the community. The Division in conjunction with KANCO branded three and two buses with TB messages on Jogoo road and Ngong road respectively.

4.10.2.5 Support supervision and DTLCs Quarterly meeting

The unit was involved in the joint support supervision and DTLCs quarterly meetings to the 12 TB zones.

4.10.2.6 TB and TB/HIV sensitization guides for health workers and the community

Draft TB and TB/HIV sensitization guide was developed for health workers and the community with support from APHIA II Western.

4.10.2.7 Stakeholders Forums on TB ACSM

The unit held one stakeholders' meeting and more than 40 stakeholders attend the meeting. ACSM dissemination meeting was held in Lenana house in July 2009 and about 45 stakeholders attended

4.10.2.8 Other ACSM activities

The unit managed to participate in other activities that were planned by the division as follows:

- Participated in *Karel Stiblo* award ceremony where the Permanent Secretary received the award presented to the division during the 2008 world Union conference on Lung Health.

- Participated in the 1st National Lung health conference in Kenya and the Global conference on Health Promotion at KICC
- Participated in the development of the Training Manual for Medium level TB control Mangers in Kenya
- Participated in the training of the district teams on PIA
- Participated in program review mission
- Participated in ACSM meeting and union world conference on lung health at Cancun Mexico, 2009

4.10.3 Achievements

4.10.3.1 Promotional, Information, Education and communication materials

Materials including brochures, banners, pamphlets, stickers, posters, T-shirt, Caps, calendars and media kit on TB and HIV were developed and printed as show below:

Summary of the promotional and IEC material printed and distributed in 2009

S/N	Item	Qty
1	Media briefing kits	700
2	Posters (Assorted)	10,000
3	Stickers	4,000
4	T Shirts round neck and polo	2,500
5	Caps both ordinary and rounds	2,500
6	Sun visors	3,500
7	TB/HIV brochures FAQs	8,000
8	Roll up Banner	6
9	Road banners	6
10	Calendars	3,000
11	CDs on TB/HIV stigma reduction	500

4.10.4 Capacity building

The unit trained and sensitized the following groups:

- 250 health workers from the private and public health sectors on TB/HIV stigma reduction
- 50 Civil society organizations sensitized on TB/HIV and ACSM
- 85 Provincial heads of departments from three regions sensitized on TB/HIV
- 45 Journalists trained on TB/HIV and ACSM activities. This improved the knowledge of Journalists on TB leading to increased articles in the Newspapers.

4.10.5 Challenges and constraints

- Shortage of resources to carry out ACSM activities.
- Inadequate coordination of TB ACSM activities at Provincial and district levels
- How to sustain and maintain awareness campaigns on TB prevention messages
- How to involve the community in TB prevention
- Stigma/discrimination on TB/HIV among health workers and the community at large

- Lack of capacity on ACSM at both the provincial and the District levels
- How to increase the funding for management of emerging MDR TB patients
- How to develop ACSM indicators
- Linking ACSM activities with other program activities

4.11 TB in Prisons

Kenya has a total of 104 prisons but only 98 of these were operational in 2009. All the operational prisons in Kenya accessed TBHIV services either through an onsite clinic within the prison or through linkage to a nearby general public health facility. DLTLD in collaboration with IMC continued to support provision of TB/HIV services in prisons and the surrounding communities.

4.11.1 Key activities

4.11.1.1 Planning meeting with provincial teams

National planning meeting took place in May 2009 at Laico Regency Hotel in Nairobi. The purpose of the meeting was to provide an opportunity for consultations with stakeholders in TB/HIV in prisons to promote a buy-in and ownership in order to enhance sustainability.

The objectives were:

1. To review the current state of KPS, HIV/AIDS and TB program activities with respect to strategies that have been working, current gaps, and identify the next steps to be taken at the station, at the facility level, at provincial and national level*;*
2. To have a common understanding of the roles of each of the key stakeholders;
3. To discuss documentation and reporting with focus on TB/HIV screening tool for prisoners.

The participants included provincial prisons commandants (PPCs), Provincial TB and Leprosy coordinators (PTLCs), Provincial AIDS and STI coordinators (PASCOs), and Provincial medical Laboratory technologists (PMLT) and Clinical officers in charge of provincial prisons clinics. The national team including the Permanent Secretary for Ministry of Home Affairs, the Deputy Senior Commissioner of Prison, the heads of DLTLD and NASCOP, the Director of KPS health services, the head of the KPS ACU and representatives of CRS, LRF and IMC attended the meeting. The output was a report with ideas on how to improve the program.

Following the meeting, the provincial teams were expected to have regular communication on program issues and to jointly visit prison facilities within their respective provinces to monitor progress of activities and provide support supervision.

4.11.1.2 World TB day commemoration

IMC facilitated the Kenya Prisons Service to organize and celebrate World TB day at Nairobi Remand Prison. There was a good participation of about 3,000 prisoners and prison officers. Health service providers drawn from Ministry of Health headquarters and prison health facilities provided health education and conducted TB screening for the prisoners and collected sputum specimens from TB suspects among the prisoners. About twenty, suspects were referred for laboratory diagnosis. On subsequent follow up, 2 of those were diagnosed with TB and put on TB treatment. The World TB Day celebration was also used

to officially launch the TB screening tool to be used to screen all new inmates before admission to prisons.

4.11.1.3 Documentation and reporting

About 40,000 copies of TB/HIV screening tool were printed and distributed to 30 new stations where officers in charge and documentation clerks were had been trained. In addition, a common referral tool for inmates was developed. These tools were developed in consultation with the officers in charge of the stations and the health service providers.

4.11.2 Capacity Building

4.11.2.1 Trainings

All planned trainings in the reporting period took place. Each targeted 30 participants from 30 prisons. Training for documentation clerks on TB/HIV screening tool targeted 60 participants (two from each of the 30 prisons). The participants were drawn from health service providers and prison officers. These trainings formed pre-requisite for expansion of services in more program areas.

Summary of trainings conducted in 2009

	Name of training	Date	No. of participants	Cadre
1	Behavior change communication	3rd to 8th May	30	KPS Chaplains and welfare officers
2	PITC	8th to 12th June	27	Health service providers
3	Adult ART	10th – 14th August	30	Health service providers
4	ART adherence counseling	17th – 21st August	30	Health service providers and prisons officers
5	TB/HIV screening tool orientation for Officers in charge of prisons – round 1	13th and 14th June	30	Prisons officers
6	TB/HIV screening tool orientation for Officers in charge of prisons – round 2	7th and 8th September	30	Prisons officers
7	TB/HIV screening tool training for documentation clerks round 1		60	Prisons officers
8	TB/HIV screening tool training for documentation clerks round 2	14th and 16th September	60	Prisons officers

4.11.2.2 Staff recruitment

*T*o ensure continuity of critical services at six main prisons [Kisumu main, Kibos, Shimo La Tewa main, Shimo la Tewa annex, Kamiti and Meru] with support of *IMC*, 15 personnel comprising 1 program manager [Nyanza/ Western], 3 clinical officers, 7 nurses, 2 radiographers and 2 laboratory technicians were recruited. These personnel have been posted and are providing services at the respective stations

4.12 General Lab Services

In 2009 microscopy diagnostic services increased from 930 to 1,183 majority of which are mainly GOK and Mission hospital facilities. This gave coverage of one diagnostic centre per 35,000 population. Sputum smear microscopy is still the main diagnostic method for tuberculosis in the Kenya. Several laboratories have graduated to using LED Fluorescent microscopes including all 8 PGH laboratories and a few busy district hospitals such as Homabay, Port Reitz and Kericho.

Diagnostic facilities by region in 2009

	Region	**Diagnostic centers**
1.	Central province	114
2.	Nyanza North	159
3.	Nairobi North	38
4.	Nairobi S	50
5.	Rift Valley North	120
6.	Nyanza South	88
7.	Western	117
8.	Coast	107
9.	Eastern South	159
10.	North Eastern	32
11.	Rift Valley South	168
12.	Eastern North	31
	Total	**1,183**

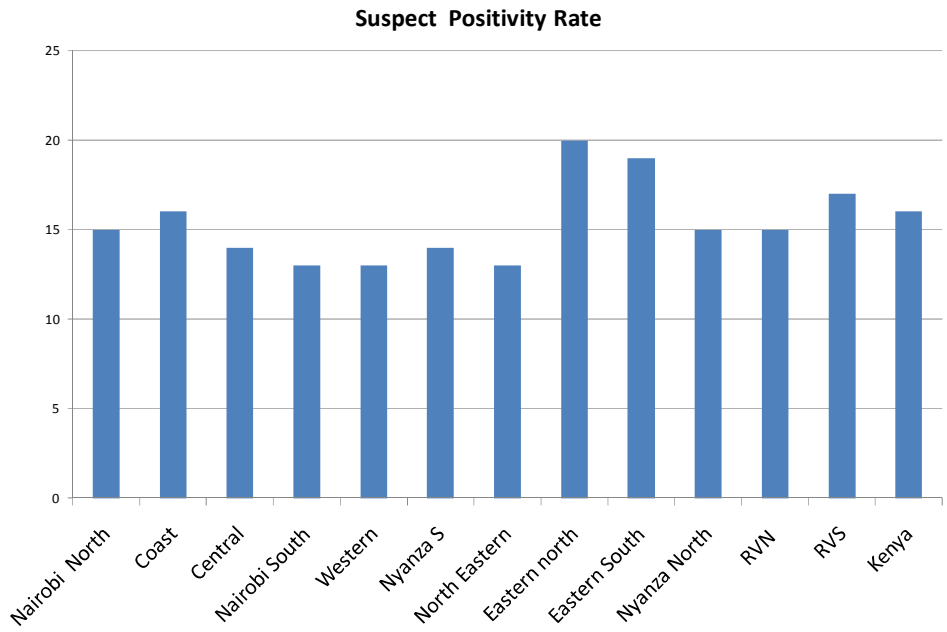
4.12.1 Key Activities

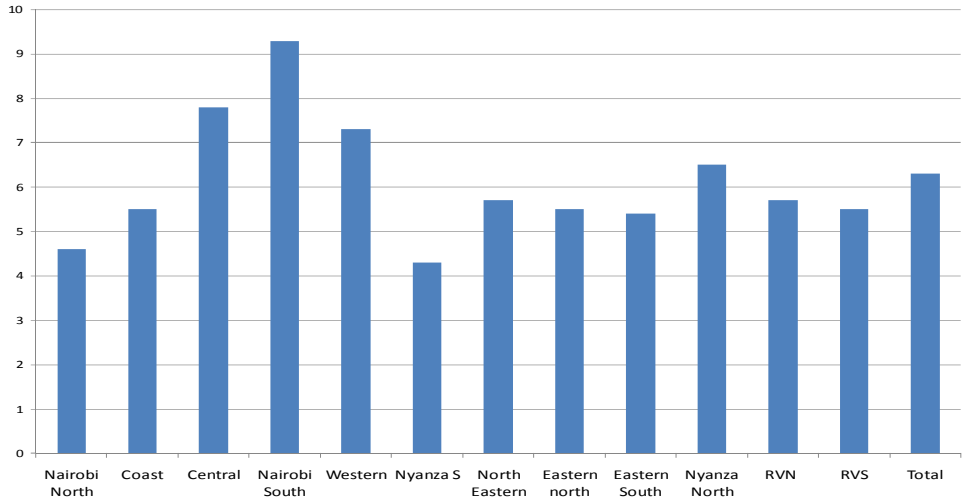
4.12.1.1 Smear Microscopy

Diagnostic sites continued to screen TB suspects and monitor patients' treatment progress as shown in the table below

Sputum microscopy in 2009

		Patients						Smears		
	Province	New	Pos	%	F/Ups	Pos	%	Total smears	Pos	%
1	Nairobi North	30,479	4,456	14.62	6,863	320	4.7	87,480	11,512	13
2	Coast	23,063	3,583	15.54	8,327	458	5.5	70,805	8,077	11
3	Central	24,216	3,300	13.63	7,691	613	8	59,078	9,409	16
4	Nairobi South	27,353	3,581	13.09	10,290	952	9.3	78,278	9,478	12
5	Western	14,415	1,905	13.22	3,855	282	7.3	34,072	4,270	13
6	Nyanza S	14,267	2,046	14.34	5,378	233	4.3	41,202	5,369	13
7	North Eastern	7,026	912	12.98	1,919	109	5.7	18,389	1,944	11
8	Eastern north	5,946	1,170	19.68	1,325	73	5.5	14,350	2,338	16
9	Eastern South	32,161	5,514	17.14	11,836	635	5.4	75,223	9,590	13
10	Nyanza North	35,470	5,450	15.37	7,383	480	6.5	67,408	9,411	14
11	RVN	22,420	3,373	15.04	7,122	407	5.7	57,473	6,645	12
12	RVS	27,656	4,793	17.33	11,048	610	5.5	74,937	10,893	15
	Total	264,472	40,083	15.16	83,037	5,172	6.2	678,695	88,936	13





4.12.1.2 **EQA**

TBCAP continued supporting EQA activities in all regions through provision of lunches and transport for DMLTS and PMLTs to give EQA feedback to diagnostic centres. By the end of 4th quarter 2009 EQA coverage was at 56%. With an average concordance of 68 %

	FACILITIES WITH EQA RETURNS							
	PROVINCE	QUARTER	TOTAL FACILITIES	WITH RETURNS	WITHOUT RETURNS	% RETURNS	≥ 95 % CON	% CON
1	Rift Valley North	1	108	66	42	61.1	45	68.2
		2	116	74	42	63.8	52	70.3
2	Rift Valley South	1	138	74	64	53.6	53	71.6
		2	148	79	69	53.4	52	65.8
3	Western	1	77	26	51	33.8	18	69.2
		2	94	40	54	42.6	17	42.5
4	Nyanza South	1	77	42	35	54.5	34	81.0
		2	68	42	26	61.8	33	78.6
5	Nyanza North	1	88	62	26	70.5	36	58.1
		2	108	65	43	60.2	43	66.2
6	Central	1	98	66	32	67.3	36	54.5
		2	102	58	44	56.9	38	65.5
7	Eastern North	1	17	7	10	41.2	2	28.6
		2	17	5	12	29.4	2	40.0
8	Eastern South	1	132	94	38	71.2	75	79.8
		2	136	37	99	27.2	24	64.9
9	North Eastern	1	32		32	0.0		0
		2	32		32	0.0		0
10	Coast	1	94	46	48	48.9	40	87.0
		2	104	64	40	61.5	53	82.8
11	Nairobi North	1	56	36	20	64.3	21	58.3
		2	63	35	28	55.6	24	68.6
12	Nairobi South	1	43	21	22	48.8	18	85.7
		2	51	43	8	84.3	24	55.8
	SUB-TOTAL	**1**	**960**	**540**	**420**	**56.3**	**378**	**70.0**
		2	**1039**	**542**	**497**	**52.2**	**362**	**66.8**

4.12.2 Capacity Building

4.12.2.1 Trainings

CDC/KEMRI supported EQA and AFB refresher trainings for DMLTS. A total of 120 lab staffs were trained while TBCAP supported two 5 day trainings in all provinces towards the end of 2009. Partners such as Walter Reed, APHIA II, ICAP, PATH etc also supported trainings in the districts they are supporting.

Three staff (one from CU and two from CRL) attended a 5 day EQA training in Dares salaam. The training was supported by American Society of Microbiology (ASM). One staff from CRL attended 5 day training on Lab safety in South Africa.

4.12.2.2 Lab Supplies

Laboratory commodities especially stain and other reagents were adequate throughout the year. There were no shortages reported in all the provinces. 50 microscopes were distributed to all regions in the year under review. Under the GFATM a microscope repair contract was signed and about 80 Microscopes were delivered for repair.

4.12.3 Constraints

The Firm identified to repair microscopes seems to be overwhelmed by the repair work. Majority of the microscopes were however beyond repair. There is still delay in EQA funds disbursements from TBCAP. The other major constant was lack of support to CRL staff to sample slides from PGH labs. As a result slides form these labs were not analyzed.

4.12.4 Achievements

- All PGH Labs now using now using FM
- Microscope repair contract in place
- New lab staff employed
- Renovation of labs going on 51 labs in the country R6 GFATM
- Recruitment and retention of lab staff through GF rd 6 support

4.13 HUMAN RESOURCE/ADMINISTRATION

4.13.1 Key Activities

In the year 2009 the following key activities were carried out:

In April the DLTLD recruited 88 lab technicians through GFTAM round 6 support. The Human resource department of the ministry of public health and sanitation and the DLTLD program officers conducted the interviews, short listed and selected successful candidates. Fifteen additional lab technicians were employed in October in line with GF recommendation to increase the targets of these lab techs.

Two workshops were held to develop District TB managers' training curriculum. The activity was supported by TBCAP. Three drafts (facilitators, participants and a participants slide) manuals were developed consisting of 9 modules. The nine modules cover areas in implementation of the Stop TB Strategy in Kenya: Epidemiological basis of TB control, laboratory support for TB control, commodity management, stakeholder's engagement in TB control, Human Resources Development, Monitoring & Evaluation, supportive supervision, and program management.

The training curriculum was subsequently piloted. During the pilot, twenty three District TB managers comprising of 12 DTLCs and 11DMLTs were trained in Mombasa at WOGECT hotel.

Further to the training;

- Two evaluation meetings took place during the training to review and update the modules.
- The division training committee recommended 2 training requests and 2 requests to attend the Cancun lung conference

4.13.2 Challenges and constrains

- Resignations of hired staff after recruitment by public service commission
- Lab technicians not willing to work in hard to reach areas
- Delay in filling the vacancies left due to the bureaucracies in of replacement of staff.
- Lack of funds to support long term courses
- Lack of conference room for meetings

4.14 Performance Improvement Approach (PIA)

PIA concept introduced into the DLTLD in 2004 by the Regional Centre for Quality Health Care (RCQHC) as a tool to help improve performance. Performance Improvement is a cyclical problem-solving process that uses standards and establishes root causes. The Goal of performance improvement is to ensure provision of high quality, and sustainable health services

4.14.1 Key Activities

4.14.1.1 Regional workshop

A regional workshop was organized by RCHQC in Nairobi in March 2009. This workshop brought together participants from 7 countries including the director of public health and sanitation. Members of DLTLD CU made presentations on activities to be implemented during the year.

4.14.2 Capacity building

During the 1st quarter of 2009, all regions were trained on PIA. In the 2nd quarter of 2009, 80 DHMTs were trained on PIA.

4.14.3 Challenges

- Inadequate follow up of PIA activities
- Weak documentation of PIA activities
- Duration of training short
- Minimal partner involvement

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AMREF

Malteser International

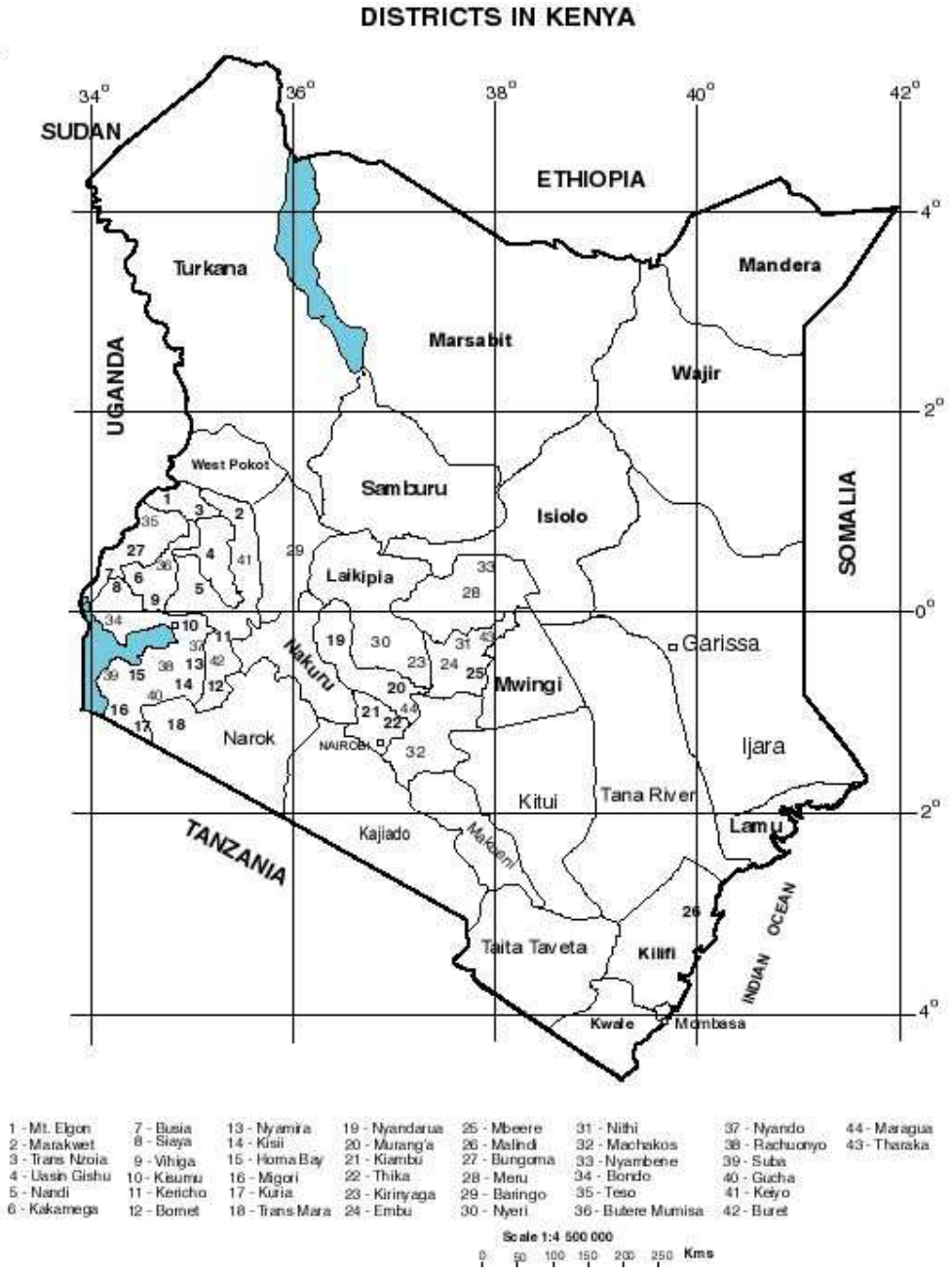
PATH- Kenya

Kenya Association for the Prevention of Tuberculosis and Lung Diseases

International Organization for Migration (IOM)

ICAP

Annex 1: Map of Kenya



Annex 2: Organizational structure of the DLTLD within the Ministry of Public Health and Sanitation